Buy Your Commodities Now

THE commercial and political events of the past month have been distinctly constructive and bullish.

Just one month ago Congress adjourned sine die.

Immediately following, in fact the week of June 9th, all grain products began a spectacular advance in price.

This advance has continued and is of paramount importance to the farmers and all those related directly and indirectly to agriculture.

And this advance is further doubly welcome because it is the long desired movement which makes the final adjustment of commodity values in favor of the farmer.

For the past year everything the farmer had to buy has declined in price, and now in the past three weeks everything the farmer has to sell has substantially advanced in price, and is going higher.

This is the commercial event of outstanding importance. It affects 45 per cent of the country's population. Some fifty millions of people, therefore, this fall will not only, as a consequence, have more money to buy goods with, but will also buy more goods because prices of all commodities are sharply lower than they were a year ago.

And all this has come to pass as a result of the economic situation the world over, and therefore is a healthy condition, and one that will not evaporate but continue to improve as the world's economic condition improves, and it is improving.

The political events have been bullish. The delegates to the Cleveland convention, elected and chosen in the same manner as were the delegates to the New York convention, nominated Mr. Coolidge on the first ballot by an overwhelming majority.

The ticket Coolidge and Dawes has met with a large and favorable reception by the country. The delegates to the New York convention have been in continual session for over 12 days and up to the writing of this article have presented no ticket to the country, and are seemingly hopelessly deadlocked.

The so-called Progressive convention at Cleveland was called to meet on July 4th. The country was not particularly interested. The radio audience in the country were busy all day with the New York wrangle. The newspapers were so full of the New York doings that no space for headlines nor extensive articles on that one-man affair, were printed. The La Follette Convention was a "dud."

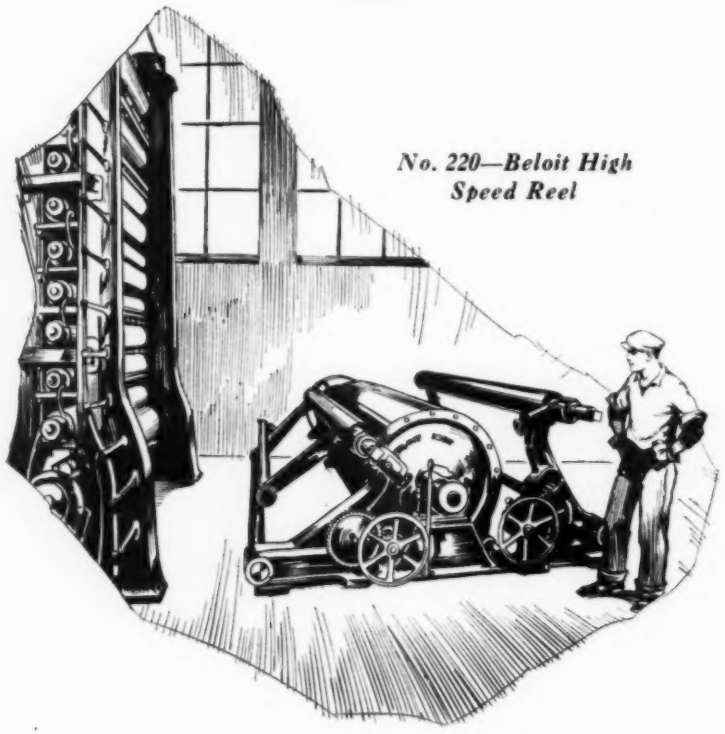
The average American believes in and is impressed by sober, orderly and constructive assembling of conventions. He laughs at splits, and frowns upon disorganization and confusion.

The net result to date is that the Republican nominees are gaining in favor every hour with the voters. The actions of the stock, bond, grain and commodity markets all confirm this statement.

Business is due to expand daily. Business is not scared and will no longer remain hesitant. The die has been cast. No matter who else is nominated, the business men of the country, and by business men we mean farmers as well as merchants and manufacturers, have decided who they will vote for, and having decided they are now all with one accord turning again to the promotion of their respective interests with a will to do a big, profitable and prosperous business this fall.

Confidence is restored.

BUY YOUR COMMODITIES NOW!



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Beloit Iron Works **Beloit, Wis., U. S. A.**

ESTABLISHED SINCE 1858

EDITORIALS

Forestry Given Big Boost

THE five-year campaign of the American Paper and Pulp Association for national forestry legislation was successfully concluded on June 7, when President Coolidge signed the Clarke bill, providing the most important legislative action ever taken in this country to encourage private reforestation and the general practice of forestry by American industry.

"We are tremendously gratified at this outcome of our campaign," said Dr. Hugh P. Baker, executive secretary of the American Paper and Pulp Association, "for this is a step which will make it possible in the near future for industry to practice forestry commercially. It will now be possible for trees to be grown for industrial use at a profit, for the cost of forestry practice will be less than the value of the product of the soil, measured in crops of trees.

"The story of this legislation is throughout one of accomplishment by the paper industry, the industry which above all has led in the actual practice of forestry in this country. In 1919 the American Paper and Pulp Association began its campaign for a national forestry policy which could enlist its support of industry, and after the reports of its forestry committee had urged the determination of a forestry policy, the National Forestry Program Committee was formed as an active group to centralize all work for national legislation.

"With the paper industry represented by R. S. Kellogg as chairman of this committee, the Snell bill was the first measure proposed for congressional consideration. After two sessions of congress, the educational efforts for this bill had been so great that the Senate named a special committee, headed by Senator McNary, to conduct a national survey of the situation and the needs.

"When the McNary bill was introduced in the upper house, Congressman Snell waived his claim to continued leadership in favor of Congressman Clarke, also from New York, and the McNary bill was introduced in the lower house with slight modification by Mr. Clarke. After the Senate had passed the McNary bill, the House of Representatives made some amendments in the Clarke bill, and then passed the amended measure. In order to avoid the confusion of the last days of Congress, the Senate then passed the Clarke bill, instead of letting the two bills go to conference, where both might have died under the smothering pressure of the last days of Congress.

"The result is that the bill which has now become a law is essentially the same in its principle of governmental co-operation in forestry with the individual states and private owners, as the original Snell bill and the perfected McNary bill.

"In its campaign for a national forestry policy, the paper industry was aided by the National Lumber Manufacturers' Association, the American Newspaper Publishers' Association and other organizations of wood-using industries, and associations interested in the development of forestry. Without their help the measure might have been delayed for many years, but the paper industry can well lay claim to having been the dominating force back of the successful campaign now concluded."

No small accomplishment in behalf of the forestry bill was the work done by the American Paper and Pulp Association in securing the endorsement of the National Chamber of Commerce of a plan which would lead to a national forestry policy. The favorable referendum was voted by members of the chamber after a special committee, of which Dr. Baker was vice-chairman, had traveled ten thousand miles studying the forestry problem in all of the timber growing regions of the country.

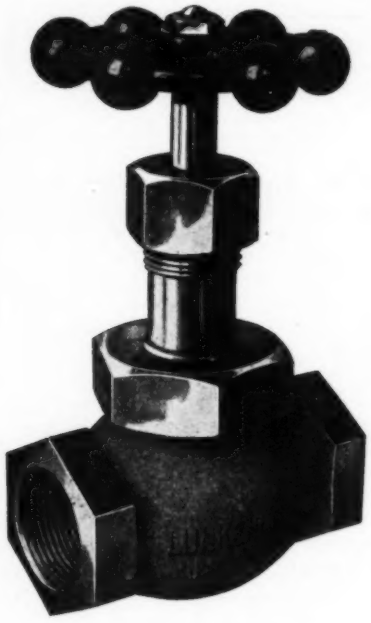
More for Our Readers

HAVING gone well into the sixth year of the life of this publication, The Paper Industry is proud of having reached a place where it feels that it is a highly respected member of this great industrial family. Founded on the principle of publishing only such material that will help those in the industry to do their work better, to make paper at a little less cost, and to disseminate information that may be of great value to everyone in the industry, it was dedicated in the year 1919 to the policy that "A Closed Hand Cannot Receive Anything." It then began its work to prove that in the loosening up and giving out of ideas from one to the other through the medium of its pages that industrial progress would be the result. The fact that progress has been made and that a light of education has been generated by the thinkers in our industry through the co-operation of their respective mills—both of Canada and the United States—none will deny. We are grateful for the small part we have taken in this advancement, and we continue and will forever appreciate the efforts that our contributors make in writing articles that are helpful to the industry and each individual in it.

Another department has been created in our magazine this month, entitled "Practical Helps for the Mill Man," and will continue through succeeding issues. The department will contain just what its title describes—little ideas that have been put into successful practice in pulp and paper mills. We will be thankful for whatever co-operation our readers will give in maintaining interest in this feature.

Heretofore, there has not been a definite department in this magazine for the technical man in our industry. Although we have apportioned in each issue a certain amount of space for the publication of articles of primary interest to them, the greater stress has been laid on securing articles that were not above the understanding of any practical worker in the mills. We have now started a new department, entitled "Technical Developments in the Paper Industry," which will contain abstracts from patent and journal literature, and will form a consecutive record of the latest developments in paper technology, both foreign and domestic. We believe that our educational work will be accentuated by the addition of this department, as new ideas and thoughts can be readily found without having to spend a lot of time reading long articles in other paper journals.

Concrete Evidence!



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THE PAPER INDUSTRY

REG. U. S. PAT. OFF.

Vol. 6 JULY, 1924 No. 4

The Manufacture of Paper Pulp from Bordeaux Pine (Pinus Maritimus)

R. MICHEL-JAFFARD

(Abridged translation prepared by A. Papineau-Couture from *"Le Papier."* XXVI, 77-84, 197-202, 321-329, 571-575, 929-935, 1077-1080, 1187-1195 (1923); XXVII, 213-219 (1924)

NOTE: The problem of finding raw materials for the paper industry is not confined to any one country. In this country far-sighted men are thinking of the time, which authorities on the subject assert is not so far off as most people think, when present supplies of pulpwood will be exhausted. The problem is somewhat different in France, for there the paper industry is much more dependent on foreign materials than we are. But the experimental results to be described in this article can be applied in their entirety by American as well as by French pulp and paper makers; for Bordeaux pine is a highly resinous tree, which is the main source of the French naval stores, and it is very similar in many respects to longleaf pine, in which the American paper industry is daily taking greater interest as a substitute for spruce. Longleaf pine would doubtless give results similar to, if not identical with, those described below. Another interesting point brought out in these tests, is the application, in a modified form, of the clorination process of de Vaines to the production of a high grade bleached sulphate pulp, with relatively low chlorine consumption. The process is being worked at present on a commercial scale in France and other countries, but on grasses (straw and esparto) only. It would give the process a tremendous impetus if it were applied to the production of bleached sulphate from wood.—Translator.

THE QUESTION as to whether France could supply its own requirements of paper making pulps is a moot question that was raised at the beginning of the Great War and which is still being keenly debated. Numerous solutions have been proposed, which are not all of equal value, by any means. The most important and most successful work done so far has been along the lines of utilization of straws in France, of esparto in Algeria, and of bamboo in Indo-China. Some mills are actually producing regularly on a commercial scale, while others are being constructed and are nearing completion. Great progress has been accomplished in perfecting various processes; and very high grade straw pulp is now being produced by the chlorine processes, which can in many cases be used instead of pulps made from resinous woods, thereby assisting in the conservation of the decreasing resources of these woods.

But grass pulps can never completely replace wood pulps, especially those produced from resinous woods, owing to the difference in properties of the two, and especially to the greater strength of the latter. Sufficient supplies of the species generally used for pulp making can be found neither in France nor in her colonies; but there is one evergreen, Bordeaux pine, which is very abundant in France and which has an annual growth quite sufficient to furnish the pulp requirements of the whole French paper making industry.

This species has been neglected by paper makers up to within a very short time ago. We have tried to obtain from it all the usual grades of chemical wood pulps; and we hope that the results which we shall describe will show conclusively that by appropriate treatment it can be used in nearly every case in place of the more generally used species, and can even be used in the manufacture of Kraft pulp, which has never yet been made in France.

We shall discuss only the technical aspect of the question, as the economical side has been repeatedly discussed elsewhere. We shall describe in order the botanical and chemical characteristics of the tree,

its transformation into pulp, conversion of the latter into paper, and finally the utilization of by-products.

Description of Bordeaux Pine

Bordeaux pine, pinaster pine, cluster pine, Maine pine, great pine (Pinus maritimus, Pinus pinaster), as it is called in various localities, is a tree about 20 to 30 meters high and 4 to 5 meters and more in circumference. Its wood differs from that of fir and spruce in that the heartwood is reddish in color and appreciably darker than the sapwood, which is due to loss of nitrogenous matter, hydrocarbons and water from the sapwood, while the starch is replaced by tannin. The heartwood is heavier and harder and is more resistant to decay than the sapwood. This is characteristic of the pines in general.

Bordeaux pine is the most resinous wood growing in France, and the rosin products are large and numerous. It is native of the coastal regions of Western Europe, and is cultivated to a considerable extent in France, especially in the Landes, where it was introduced by Brémontier to fix the sand dunes along the coast. It is found on the Côte d'Azur, in Corsica, along the Pyrenees, and to a slight extent in Algeria. The annual French production amounts to 2,100,000 cubic meters of timber and 1,400,000 cubic meters of fire wood, making a total of 3,500,000 cubic meters.

Under the microscope its fibers are readily distinguished from those of fir or of spruce by the presence of square pits, which it has in common with other pines, and which we have noted in Kraft pulp fibers. They are smaller and less distinct in Bordeaux pine than in Scotch pine and in Kraft, at least in those samples which we examined. Some authors claim that the fiber length and the felting power of Bordeaux pine is lower than that of Scotch pine or of Kraft pulp, but a comparison of our results with published data does not bear this out:

Species	Average Length mm.	Average Diameter mm.	Felting Power
Bordeaux Pine ...	3.6	0.043	84
Spruce	3.36	0.049	69
Kraft	2.85	0.045	63.3
Scotch Pine	0.95-4.50	0.015-0.075	
Spruce	1.00-3.80	0.025-0.070	
Fir	1.00-3.50	0.024-0.069	

It would not be fair to conclude from these few results that Bordeaux pine has a higher felting power, for the dimensions of the fiber depend not only on the species of wood, but also on the age of the tree, the height at which the sample was taken, and even on the direction which it was facing. But we are quite justified in saying that the dimensions for the various species are quite comparable.

No absolute figures can be given for the chemical composition of the wood, for it varies in the same manner as the dimensions of the fibers; and moreover, there are considerable differences between the tapped and untapped trees. When a tree is tapped for the extraction of gum turpentine, the tree secretes a greater amount of this substance for self-protection. The resin content of the wood is highest in the neighborhood of the tap hole, and gradually falls off, becoming normal again at some distance away from the hole.

The results given below show the amount of resin which we found in tapped and in untapped wood, as compared with data published by other authors. All our extractions were made exclusively with ether.

Species	Resin (on moist wood)	Resin (on dry basis)
Untapped Bordeaux Pine	7.18%	8.00%
Tapped Bordeaux Pine (near tap hole)	14.6 %	16.7 %
Tapped Bordeaux Pine (some dist. from tap hole)..	4.0 %	.....
Spruce	0.97%[3]	3.28 (1.67 ether soluble[1]; 1.61 alc. sol'ble) 1.91=1.2 according to the species[2] 0.70=1.80 ether s'l'ble[4] 0.70=1.94 alc. soluble[4]
Scotch Pine	1.63%[3]	
Longleaf Pine(P. palustris)		2=6%[5] 6.32%[5]

We did not find as much cellulose in this wood as others found in the various conifers.

Species	Water %	Fat and Resins %	Cellulose %	Cellulose on dry and Resin-Free basis %
Untapped Bordeaux Pine	12.0	7.8	41.3	51.2
Tapped Bordeaux Pine..	12.6	14.6	38.0	52.2
Longleaf Pine[6]	0.0	6.32	58.48	62.2
White Spruce[6]	0.0	1.36	61.85	62.8
Scotch Pine[7]	12.87	1.63	53.27	63.2
Spruce[7]	13.87	0.97	56.99	66.9
Spruce[8]	0.0	3.3	53.0	54.8

It should be mentioned that Schroger used the Renker method, which gives much higher results than the Cross and Bevan method which we used. Hugo Muller's method is quite different; while Klason, who used a still different method, obtained for spruce results very close to what we found for Bordeaux pine. It should be noted that, though the resin content lowers the percentage by weight of cellulose, it does not affect the yield per cubic meter, which de-

[1] Griffin and Little; [2] Uhlricht; [3] Hugo Muller; [4] Richter; [5] Schorger; [6] Schorger; [7] Hugo Muller; [8] Klason.

pends on the per cent of cellulose in the dry and resin-free wood.

Criticisms Against the Use of Bordeaux Pine

The failure of early attempts to use this wood for paper making is attributed to its high resin content; and for this reason many paper makers consider it impossible to make a clean pulp from it without previously extracting the resins. But it should be remembered that in the great majority of cases (except blotting paper, of course) the resin cannot do any harm unless it is in the form of grains of an appreciable size which would be liable to cause transparent spots in the paper, as sometimes happens with defective sizing. When it is uniformly distributed throughout the stock it cannot do any harm. For in the sizing operation the amount of rosin added to the paper is frequently as large as that found in Bordeaux pine, except when it has been tapped for turpentine; and a large proportion of the rosin added in sizing is free, as paper makers generally try to have as much free rosin as possible in the size.

Groundwood

In the manufacture of groundwood, the wood is not subjected to any chemical, nor even to any heat, treatment which could in any way modify the very irregular distribution of the resin and turpentine in the wood. On the other hand, the wood can be extracted only in the form of chips, which could not be subsequently ground. It is evident, therefore, that it is not at all suitable for the manufacture of groundwood.

In the manufacture of "brown" pulp, or semi-chemical pulp, by steaming before grinding, the wood is not subjected to the action of a resin solvent; but it is heated to a temperature much higher than the melting point of the resin, which would have a decided tendency to distribute it more evenly, and also to eliminate a part of it. At the same time, a goodly portion of the turpentine is readily removed on account of its volatility. On the other hand, the wood is not always steamed whole, but is occasionally chipped and is ground in a kollergang. In this case, of course, it would be quite feasible to extract the chips with a suitable solvent before steaming them. But as the demand for this kind of pulp is very limited, we did not deem it worth while to make any tests along this line. We did not find anything on the subject in the literature at our disposal; but it is probable that the harder and denser heartwood would require an increase in the time or pressure of treatment.

Chemical Pulp

The same objection has been made to the use of Bordeaux pine for the manufacture of chemical pulp. An unsuccessful attempt to convert it into sulphite pulp was made a few years ago. It was claimed that the fact that the resins were insoluble in the liquor prevented proper cooking, and that moreover it made the pulp so dirty as to be unfit for use. It was contended that only deresinified wood could be pulped.

But in our opinion the resin content is not the chief factor which interferes with the cooking of the wood direct, even by the sulphite process. The root of the trouble lies in the hardness of the heartwood, which requires a more drastic treatment than spruce or fir. But the sulphite process is not the only one which can be used for pulping wood. There are also the soda process and the so-called sulphate process in which losses of alkali in recovery are made up by addition of sodium sulphate instead of soda ash. On incinerating the concentrated liquor the sulphate is converted into sulphide which seems to protect the fibers during the cooking. This process is used especially for the production of Kraft pulp, which is an unbleachable but very strong and at the same time very soft pulp obtained by incomplete cooking. Both these processes are quite drastic, being carried out under high pressure, and the alkaline reagents used dissolve out the resins just as easily as the lignin, transforming them into soluble soaps. There is no reason why these processes should not be applicable to the pulping of unextracted Bordeaux pine, and this has been borne out by experience—they are the ideal processes for this wood.

But they are not the only ones which can dissolve out the resins. Quite recently, two processes have been perfected, both of which are based on the reaction between chlorine and lignin which was discovered by Cross and Bevan and applied by them to the determination of cellulose. They are de Vains process and the Cataldi-Pomilio chlorination process, in both of which the chlorine treatment is preceded by an alkaline treatment. Both of them are suitable for the treatment of Bordeaux pine, either alone or in conjunction with the usual soda or sulphate process, and we shall show further on, that they can be used to good advantage for the production of bleached pulp.

Now that we have shown that theoretically there is nothing to prevent the production of pulp suitable for paper making from Bordeaux pine, we shall next see what practical results can be expected. First of all, we shall review the bibliography of this question; after which we shall describe the results of the tests carried out in our laboratories; and finally we shall examine the various uses which can be made of the pulps which we have obtained.

Bibliography

As regards Bordeaux pine itself, practically nothing has been published; and all we have been able to find is a mere mention of it in a few patents, more particularly in the Harnist patent. But on the other hand considerable attention has been paid in the United States to the utilization of the more resinous pines, and especially of the longleaf pine.

(The author reviews the work done at the Forest

Products Laboratory at Madison on this subject, and gives brief indications concerning a few patents concerned with the extraction of resins. As this work is familiar to American paper chemists, it need not be reproduced here.—Trans.)

Method of Carrying Out the Alkaline Cooks

The wood was cooked in a thirty liter jacketed autoclave, which was heated indirectly by admitting steam between the two walls, and which was provided with a gas relief, a thermometer, a manometer, and a screen to prevent the wood from floating on top of the liquor. We also added a liquor relief consisting of a siphon pipe passing through the cover of the autoclave. We observed that when the liquor was drawn off without removing the cover of the autoclave the pulp was easier to bleach; but we shall go further into this when discussing the different cooks.

In order to expedite matters, we worked with only one kilo of material consisting of either tapped or untapped wood twenty to forty years old. The composition of the tapped wood was much more irregular than that of the untapped wood, and it differed from the latter only in the neighborhood of the tap holes. We preferred using untapped trees, and did more work on them. Whenever the use of tapped wood is not specifically mentioned, it must be understood that we used untapped trees.

The wood was split and cut into chips with a drawknife, or preferably sawn into discs 2 cm. thick, and then cut up into small rectangular pieces 2 cm. x 2 cm. x 0.5 cm.; so as to obtain chips of the same size as are used commercially, as far as possible. The chips were sampled to determine their moisture content, and charged into the digester. The desired quantity of soda was added in the form of a concentrated solution of known strength, and sufficient water was added to give the desired concentration of cooking liquor, taking care, of course, that there was enough liquor to cover the chips. The latter was prevented from floating by means of a suitably weighted screen.

Steam was then turned on and the gas relief was kept open until steam began to escape. The rate of heating was then regulated so as to follow a predetermined curve, and the temperature and pressure were observed at half-hour intervals.

At the end of the cook the steam was shut off and the pressure in the digester was relieved. At first, we relieved to atmospheric pressure, and then opened the digester to take a sample, draw off the liquor, and wash the pulp. But after we had put on the siphon pipe we relieved only to a pressure of 2 kilos, and discharged the liquor through the siphon at this pressure. Fresh water was introduced into the digester through the siphon for the first washing, and drawn off after a short time. The cover was then removed and washing was continued, the wash water being siphoned off by means of a rubber tube, the end of which was covered with a wire gauze to prevent loss of fiber.

All washings were carried out hot, as owing to the double walls and lagging the digester retained its heat long enough. The pulp was washed until the wash water came out almost colorless. All the alkali was removed long before this stage was reached.

The pulp was then thrown on a wire screen and pressed to remove excess moisture; after which it was weighed moist, and sampled for moisture to determine the yield. It was next defibered, washed either on a screen or in the beater, and finally drained on a wire screen. At this stage it was again sampled for moisture content, which was required for the bleaching tests.

Bleaching

At first this operation, including the determination of the chlorine consumption, was carried out in open porcelain dishes at a temperature of 40° to 50° C., with occasional stirring. For each test we added the required amount of bleaching powder and heated until all the chlorine had been used up.

As this did not give good whites with reasonable chlorine consumptions, we made a series of comparative bleaching tests on two different cooks. Lack of time prevented us from carrying these out as systematically as we would have liked; but all the same they gave the following very interesting information:

1—Under laboratory conditions a temperature of 40° to 50° C. is not as efficient as a temperature of about 30° to 35° C. Of course we are not considering the time of bleaching, but merely the utilization of the bleach.

2—At the same temperature, and under the same conditions, washing with water or soda and acidifying during bleaching (especially acidifying at the beginning of bleaching) are useless or positively harmful.

3—At the optimum temperature of 30° to 35° C. washing with soda and acidifying towards the end of the bleaching seem to result in a better utilization of the chlorine, which can reduce the chlorine consumption by about 2 per cent when 10 per cent would be required, and by about 1 per cent if 5 per cent are required.

4—One of the cooks was very much easier to bleach than the other, and the difference was greater than could be accounted for by the differences in the bleaching methods.

The last point showed that our main efforts should be directed to cooking conditions rather than to bleaching conditions.

However, in accordance with the above results we stopped bleaching at 40° to 50° C., and in order to be able to run several tests simultaneously under

constant conditions we adopted the following procedure:

Equal weights of the pulp are placed in a series of wide-mouthed stoppered bottles, and increasing quantities of bleach liquor of known strength added to the different bottles. Enough water is added to give a consistency of exactly 2 per cent, and the bottles are stoppered, shaken, and allowed to stand at room temperature (about 20° C.) until all the available chlorine has been used up, which is ascertained by testing periodically with potassium iodide-starch paper. When all the chlorine has disappeared, which frequently requires several days, the pulp is washed very thoroughly, and a sheet is made and dried in the oven under a weighted felt. The various sheets are then compared to see the smallest quantity of chlorine which gave a satisfactory white. The yield is determined in the same manner as for the unbleached pulp. Rapid preliminary tests were frequently carried out at 40° to 50° C. to get some idea of the amount of chlorine which should be added.

These were carried out exclusively on untapped wood, by both the soda and the sulphate processes.

Soda Cooks

Starting off from the results of H. E. Surface (Suitability of Longleaf Pine for Paper Pulp, U. S. Dept. of Agriculture Bull. No. 72, May 29, 1914) we modified the various conditions with a view to obtaining maximum whiteness with minimum bleach consumption.

We always cooked with a pressure of 7 to 8 kilos; this is generally admitted to be the most suitable pressure for alkaline cooking of wood, and we could see no reason for changing it. We directed our efforts especially to the total amount of alkali on the weight of wood, and to the concentration of the liquor, both of which seem to exert considerable influence on the yield and on the bleaching qualities. We also improved the washing conditions, which are not without effect on the ease of bleaching.

The following conclusions can be drawn from the results of these tests:

1—The production of easy bleaching pulp requires the use of a considerable excess of soda over and above the amount actually consumed in cooking.

2—The liquor should be fairly concentrated. In all likelihood the large excess of soda is required to prevent excessive decrease in the concentration during cooking. The poor results obtained by steaming before cooking are also attributable to dilution.

3—The pulp is more easily bleached when the liquor is discharged and the washing of the pulp is begun before opening the digester, as is generally done in commercial operations. The increased difficulty caused by first opening the digester is presumably due to oxidation of the black liquor by the atmosphere.

4—The soda consumption does not vary greatly, and is generally in the neighborhood of 15 per cent.

5—Increasing the time decreases the yield; while excessive pressure or concentration of alkali has absolutely disastrous effects on the yield.

6—The best results were obtained by using 30 per cent of soda on the weight of the wood, in the form of a 6 per cent liquor, cooking for 6 hours at a pressure of 7 kilos, after taking 2 hours to come up to pressure.

7—Under these conditions the yield of unbleached pulp was about 35 per cent on the weight of the dry wood.

8—When properly washed this pulp bleached with 5 per cent of available chlorine (equivalent to 15 per cent of bleaching powder) with a practically negligible loss. Though the color obtained was not snow white, it would be quite satisfactory for most papers. It is highly probable that the color would be better in commercial-scale operations; for we have observed, as have many others before us, that pulps bleached in the laboratory were not quite as white as those bleached commercially with the same chlorine consumption.

9—Easy-bleaching soda pulp prepared from Bordeaux pine is very pure, and contains but little hydrocellulose, oxycellulose, or hemicellulose. Though not as pure as cotton cellulose, it is purer than unbleached sulphite, containing about 90 per cent of cellulose as compared with 85 for the sulphite; but the cellulose is appreciably degraded during bleaching, and a slight increase in the amount of chlorine used causes a considerable decrease in the alpha-cellulose content.

(Continued next issue)

Power Through Memory

Most of us do not use our memories definitely, continuously, consciously. We forget we have such a valuable and important servant always with us. Why not use it more?

Each day in our reading—whether letter, newspaper, magazine, or book—read to remember.

Each day in listening to others—whether your associates, your friends, your family, or those met for the first time—listen to remember.

Each day in thinking things over—whether your business, your work, or your family affairs—think, to remember.

Each day, whatever you do—remember.

And at the close of the day, to clinch things, run over in your mind what you have remembered.

Thus much wisdom and power are within grasp of each of us.—The Three Partners.

A centipede must be in hard luck these days—with the price of shoes so high.

The promising young man may be all right, but a paying one gets along better.

Slight Increase in Accidents in Paper & Pulp Mills

BY JOHN M. SANDEL
Safety Engineer, National Safety Council

THE severity of accidents in the mills of members of the Paper and Pulp Section of the National Safety Council increased in 1923 over the year of 1922, but the result was better than in the year of 1921. The number of members participating (sixty-six) was greater than ever before, and the mills worked almost 120,000,000 hours.

Both the number and severity of accidents in all industries was greater for the year of 1923 than the previous year. The National Safety Council collects statistics of quite a few industries and nearly all of them show an increase for 1923. The reason for this condition of affairs is the more intensive production methods used, increased employment during the year, and a decrease in intensive safety work during the past few years following the business depression of 1921. Industry as a whole is awake to these causes, and as a result more interest in safety work during

PAPER AND PULP SECTION ACCIDENT STATISTICS

1923 Rank	1922 Rank	1921 Rank	1920 Rank	Co. Key Number	Average Number of Employees	Number of Hours Worked	Number of Accidents: Deaths	Permanent Disabilities	Temporary Disabilities	Total	Number of Days Lost: Deaths	Permanent Disabilities	Temporary Disabilities	Total	1923: Frequency Rate	1923: Severity Rate	1922: Frequency Rate	1922: Severity Rate	1921: Frequency Rate	1921: Severity Rate	1920: Frequency Rate	1920: Severity Rate	Co. Key Number
1	2	..	3	70	93	201,345	..	..	1	1	.....	.....	1	1	4.96	.005	14.44	.058	.....	.....	.....	.....	70
2	15	2	2	44	360	872,640	..	..	5	5	.....	.....	19	19	5.72	.026	181.48	.327	4.70	.060	11.90	.16	44
3	8	..	..	74	195	507,000	..	..	1	1	.....	.....	18	18	1.97	.035	22.29	.173	.....	.....	.....	.....	74
4	31	8	..	47	181	436,960	..	..	2	2	.....	.....	41	41	4.82	.094	32.34	.696	34.50	.339	.....	.....	47
5	6	..	..	78	3,919	6,938,568	..	.	83	83	.....	.....	798	798	11.98	.115	9.24	.137	.....	.....	.....	.....	78
6	..	..	41	33	225	609,520	..	..	11	11	.....	.....	82	82	18.06	.134	.....	.....	.....	.....	12.50	9.4	33
7	..	..	..	83	735	1,528,800	..	..	41	41	.....	.....	274	274	26.81	.179	.....	.....	.....	.....	.....	.....	83
8	..	..	..	84	608	1,498,112	..	..	20	20	.....	.....	286	286	13.37	.191	.....	.....	.....	.....	.....	.....	84
9	9	..	8	36	144	359,811	..	..	7	7	.....	.....	75	75	19.45	.208	17.64	.191	.....	.....	12.60	.12	36
10	1	..	..	71	33	77,220	..	..	2	2	.....	.....	18	18	25.91	.233	0.	0.	.....	.....	.....	.....	71
11	12	23	..	57	745	1,605,523	..	..	50	50	.....	.....	500	500	31.11	.311	322.94	.262	15.30	.755	.....	.....	57
12	24	49	52	15	1,221	2,751,837	..	2	130	132	.....	300	892	1,192	35.29	.317	39.16	.489	18.20	6.500	24.90	3.62	15
13	34	64	..	52	225	532,648	..	..	29	29	.....	.....	218	218	45.91	.344	88.00	.788	250.00	15.90	.....	.....	52
14	..	..	..	85	100	270,000	..	..	6	6	.....	.....	96	96	12.21	.355	.....	.....	.....	.....	.....	.....	85
15	20	6	..	62	215	551,416	..	..	16	16	.....	.....	224	224	29.06	.406	35.77	.410	46.60	.310	.....	.....	62
16	..	..	..	86	74	199,880	..	..	6	6	.....	.....	82	82	30.01	.410	.....	.....	.....	.....	.....	.....	86
17	..	..	..	87	585	1,404,000	..	..	72	72	.....	.....	581	581	51.28	.414	.....	.....	.....	.....	.....	.....	87
18	29	33	11	8	1,155	2,345,827	..	1	122	122	.....	.....	999	999	51.09	.417	46.92	.690	40.90	1.320	35.90	.421	8
19	..	..	..	88	371	1,350,329	..	1	40	41	.....	300	301	601	30.35	.445	.....	.....	.....	.....	.....	.....	88
20	16	41	..	50	1,099	2,728,522	..	1	55	56	.....	300	945	1,245	20.53	.457	25.60	.327	26.00	2.280	.....	.....	50
21	45	..	..	77	534	1,193,521	..	3	27	30	.....	300	345	645	24.83	.539	28.46	1.737	.....	.....	.....	.....	77
22	13	4	14	30	145	336,960	..	..	13	13	.....	.....	192	192	38.64	.572	41.66	.326	12.50	.175	46.00	.611	30
23	55	16	21	22	505	1,401,213	..	1	61	62	.....	300	586	886	44.12	.631	62.76	4.042	72.50	.640	73.00	.91	22
24	39	34	18	5	262	657,321	..	..	21	21	.....	.....	428	428	31.95	.652	29.23	.690	52.00	1.410	33.5	.48	5
25	54	5	4	27	171	546,000	..	..	25	25	.....	.....	394	394	45.62	.721	31.96	3.960	14.70	.280	25.1	.18	27
26	..	..	..	89	256	660,120	..	..	42	42	.....	.....	539	539	63.51	.814	.....	.....	.....	.....	.....	.....	89
27	47	36	12	41	2,576	6,766,990	..	13	74	87	.....	3,980	2,154	6,134	12.82	.906	21.48	2.498	15.00	1.501	28.00	1.50	41
28	..	..	..	90	61	129,298	..	..	9	9	.....	.....	118	118	69.62	.912	.....	.....	.....	.....	.....	.....	90
29	..	..	..	91	200	507,176	..	1	48	49	.....	300	165	465	96.62	.918	.....	.....	.....	.....	.....	.....	91
30	38	23	30	23	790	2,199,545	..	..	101	101	.....	.....	2,074	2,074	45.91	.946	59.19	1.030	44.32	.758	55.80	2.30	23
31	21	46	..	54	340	828,100	..	..	32	32	.....	.....	822	822	38.65	.992	42.50	.438	35.80	3.970	.....	.....	54
32	59	39	..	53	350	840,000	..	..	70	70	.....	.....	897	897	82.32	1.068	77.54	8.130	59.30	1.029	.....	.....	53
33	..	..	..	92	60	156,000	..	..	6	6	.....	.....	187	187	38.42	1.199	.....	.....	.....	.....	.....	.....	92
34	51	40	22	40	3,344	6,290,152	..	1	303	304	.....	3,600	4,280	7,880	48.31	1.268	43.21	3.811	41.06	2.166	54.83	1.60	40
35	..	..	..	93	296	709,368	..	..	45	45	.....	.....	900	900	63.51	1.269	.....	.....	.....	.....	.....	.....	93
36	53	15	16	18	199	648,500	..	1	57	58	.....	300	533	833	89.45	1.285	94.23	3.880	48.00	.530	53.60	.631	18
37	60	53	28	12	280	762,300	..	2	30	32	.....	600	400	1,000	41.98	1.311	48.72	9.342	66.20	12.40	48.90	2.03	12
38	..	..	..	94	252	625,000	..	1	38	39	.....	300	560	860	62.48	1.375	.....	.....	.....	.....	.....	.....	94
39	..	..	..	95	831	1,637,023	..	2	83	85	.....	2,100	345	2,445	33.62	1.495	.....	.....	.....	.....	.....	.....	95
40	44	24	27	13	412	1,073,923	..	2	54	56	.....	1,500	522	2,022	52.08	1.884	59.09	1.722	80.00	.840	71.20	2.24	13
41	..	..	..	96	165	1,227,600	..	2	12	14	.....	2,100	265	2,365	11.41	1.922	.....	.....	.....	.....	.....	.....	96
42	40	3	..	69	362	872,868	..	2	12	14	.....	1,800	94	1,894	14.39	1.949	17.58	1.078	10.00	.061	.....	.....	69
43	32	..	24	3	471	1,366,446	..	3	91	94	.....	1,800	947	2,747	66.79	2.011	60.0	.780	.....	.....	76.90	4.40	3
44	..	..	..	97	1,025	3,125,000	..	..	55	56	6,000	....	1,538	6,538	17.88	2.083	.....	.....	.....	.....	.....	.....	97
45	..	..	..	98	1,792	4,930,489	1	..	327	328	6,000	....	4,608	10,608	66.19	2.162	.....	.....	.....	.....	.....	.....	98
46	..	..	..	99	781	1,952,500	..	5	98	103	.....	3,150	1,250	4,400	52.81	2.258	.....	.....	.....	.....	.....	.....	99
47	42	38	32	43	154	303,072	..	1	43	44	.....	300	455	755	145.52	2.492	128.90	18.56	30.30	1.521	25.80	4.26	43
48	..	..	37	28	387	1,082,700	..	4	75	79	.....	1,940	814	2,754	72.33	2.521	.....	.....	.....	.....	51.80	5.85	28
49	..	..	..	35	163	477,562	..	2	62	64	.....	600	1,119	1,719	133.92	2.551	.....	.....	.....	.....	.....	.....	35
50	..	..	..	100	910	2,548,000	..	5	301	306	.....	4,200	3,550	7,750	119.70	3.042	.....	.....	.....	.....	.....	.....	100
51	41	30	40	20	355	920,691	..	2	50	52	.....	1,300	943	2,243	56.41	3.142	53.33	1.166	93.70	1.130	96.30	7.98	20
52	..	..	..	101	850	2,550,000	1	1	98	100	6,000	300	1,756	8,056	39.21	3.161	.....	.....	.....	.....	.....	.....	101
53	61	31	42	17	275	684,200	..	1	44	45	.....	1,500	1,127	2,627	65.96	3.846	67.14	17.70	33.70	1.200	90.40	11.20	17
54	18	..	8	34	544	1,584,860	1	..	66	67	6,000	....	370	6,370	42.32	4.021	44.17	.385	.....	.....	49.90	.29	34
55	48	44	..	60	1,530	4,335,818	2	5	262	269	12,000	1,500	4,513	18,013	62.18	4.171	72.54	2.780	74.30	2.710	.....	.....	60
56	35	..	..	102	575	1,435,200	1	..	74	75	6,000	....	1,090	7,090	52.25	4.936	56.43	.859	.....	.....	.....	.....	102
57	..	19	..	61	994	2,732,534	2	..	152	214	12,000	....	1,707	13,707	78.49	5.032	.....	.....	67.00	.710	.....	.....	61
58	56	48	31	21	7,975	18,295,000	10	4	738	752	60,000	24,000	15,516	99,516	40.92	5.415	46.01	4.822	36.80	3.470	46.00	3.61	21
59	50	47	24	31	970	2,812,092	2	6	83	91	12,000	2,600	1,263	15,863	32.36	5.641	35.77	3.080	24.80	6.010	18.80	1.83	31
60	39	26	18	7	681	1,835,933	1	1	116	118	6,000	3,600	1,586	11,186	64.27	6.092	87.50	1.064	63.40	.853	71.00	.71	7
61	57	13	19	42	524	1,204,562	1	..	45	46	6,000	....	1,932	7,932	38.18	6.586	39.40	5.130	44.30	.486	26.60	.748	42
62	..	9	..	59	300	947,223	1	2	34	37	6,000	600	443	7,043	39.06	7.414	.....	.....	38.10	.347	.....	.....	59
63	52	32	35	16	350	854,180	1	..	58	59	6,000	....	390	6,390	69.04	7.491	71.26	3.874	84.00	1.310	75.60	4.52	16
64	..	..	..	103	114	320,650	..	1	27	28	.....	2,000	474	2,474	87.48	10.808	.....	.....	.....	.....	.....	.....	103
65	43	..	..	75	445	1,187,201	3	13	104	120	18,000	2,514	1,235	21,749	95.32	18.310	57.00	1.464	.....	.....	.....	.....	75
66	62	65	..	62	65	216,500	1	..	27	28	6,000	.....	459	6,459	129.06	29.802	141.83	43.930	80.00	39.630	.....	.....	62
Totals and Averages					44,939	115,901,680	29	91	4,922	5,042	174,000	70,984	71,435	316,419	43.50	2.730							
					42,148	106,830,481				5,106				252,219			47.77	2.361					
					34,347	81,196,427				3,380				230,042					41.67	2.833			
					30,851	79,573,582				3,684				206,789							46.34	2.598	
Four-Year Totals and Averages					152,935	383,502,170				17,212				1,005,466	44.67	2.628							

the early months of 1924 has been shown. It is hoped that more safety work now will offset the unfavorable reaction of curtailment of safety activities, or non-resumption of safety work following the business depression.

The record of the participating companies are arranged in the accompanying table in the order of their severity rates. The frequency rate is the number of accidents per million hours worked; the severity rate is the number of days lost per 1,000 hours. Lost time accidents only are considered in these figures. When calculating severity and frequency rates, certain constants were used in place of the actual lost time whenever deaths and permanent disabilities were reported. These constants range from 300 days for the loss or disability of a finger to 6,000 days in case of a death. In this way, plants which experienced the same kinds of accidents can be more correctly and easily compared. An example of this is shown in the severity rates for companies 97 and 98, two large mills where deaths occurred. If the constant figure or penalty for the death was disregarded, the severity rate for company No. 97, would have been .171, and the severity rates for No. 98, would have been .955; a big difference. But when the deaths are considered (and they should never be left out of any statistical tabulation) we get the correct picture of the two mills. There is little difference in the severity because of their accidents.

The following table is interesting showing the number of mills of different sizes that are included in the large table.

AVERAGE NUMBER OF EMPLOYEES DURING 1923.

	Over 1,000 employees	500-1,000 employees	100-500 employees	100 or less employees	Total
Records for 4 years..	5	5	11	..	21
Records for 3 years..	2	2	8	1	13
Records for 2 years..	1	3	5	2	11
Record for 1 year...	2	7	8	4	21
	10	17	32	7	66

Nearly half of the mills participating employ from 100 to 500 men.

Companies who participate in this tabulation of the accident records are notified of their own key-number, to protect their confidential records that are furnished to the National Safety Council. The method of keeping statistics outlined in National Safety Council's Safe Practice pamphlet No. 21, will be gladly sent any reader of The Paper Industry who is interested in these subjects.

Two boards nailed together to form a right angle and another one on the bottom for a standard will protect edges of rolls from being hit by trucks, particularly where storing space is small.

What Decay Does to Groundwood Fibers

Figure No. I shows fresh, decay-free fibers of groundwood pulp as they are revealed by a powerful microscope.

Figure No. II—a high magnification also—shows groundwood fibers that have been attacked by a wood-destroying fungus. These fibers have been so

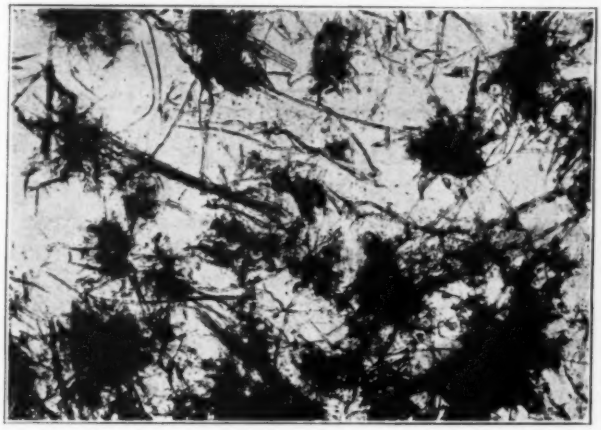


Figure 1

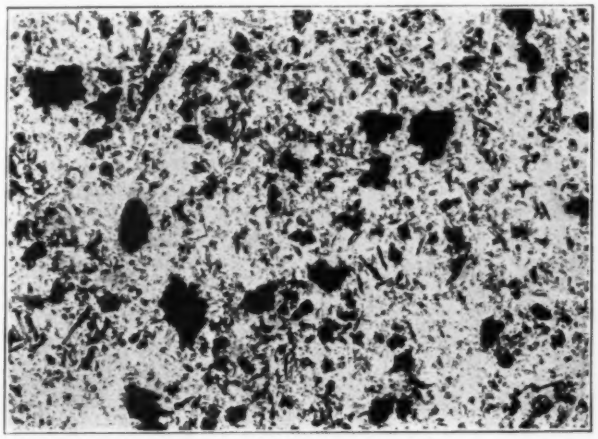


Figure 2

(Photographs by Forest Products Laboratory, U. S. Forest Service)

broken up that they will not felt and will for the most part be lost in the white water. Decayed fibers which mingle with sound fibers in the sheet tend to give the paper a rough, dirty appearance and to increase brittleness.

The Forest Products Laboratory has developed inexpensive pulp preservatives which will keep stored pulp free from fungi and molds over long periods of storage.

Life is in helping the other fellow. Some men spend their time building hurdles for the next fellow to climb over when they might be building ladders for themselves. There is more money and satisfaction in ladders than there is in hurdles.—Making Paper.

Wood Preparing Equipment

By HARRY E. WESTON

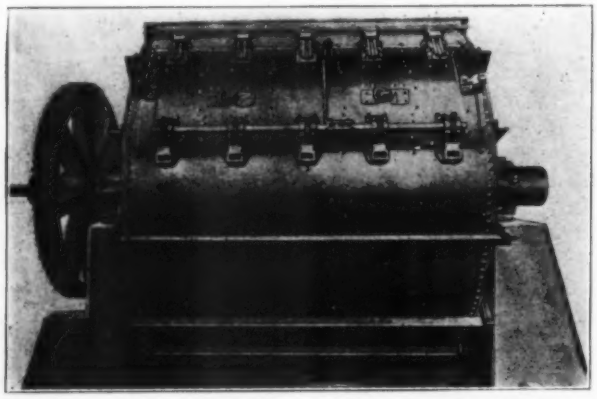
Assistant Professor of Pulp and Paper Manufacture, The New York State College of Forestry, Syracuse, N. Y.

This is the fourth installment of Mr. Weston's article on Wood Preparing Equipment. The series will continue through a number of succeeding issues of this magazine.

Barking Drums

THE excessive amount of waste common to rossing wood with disc barkers demanded the attention of a number of inventors and from their work our present types of barking drums evolved. The fundamental idea in mind was to build a barking machine that would bark clean and still do it economically without loss and without the large number of workers as experienced in the operation of disc barkers.

Two distinct types of drums resulted from the inventions, namely, the intermittent and the continuous. The intermittent drum was adapted to handling small batches of wood at a time, whereas the continuous drum was more or less continuous in operation—that is wood was fed by conveyors into one end of the drum where it tumbled about, gradually working toward the opposite end, from which it was discharged automatically.



Courtesy Baker Mfg. Co.

The Bache-Wiig Barking Drum

The older type of drum was of the intermittent style. A number of different designs have been made and operated but the one which has played an important part in the industry of this country is the Bache-Wiig Barking Drum. It is about 9 feet 7 inches in diameter and 9 feet long and is constructed from heavy boiler plate steel. The heads are flanged and riveted to massive hollow trunnion castings with journals 14½ inches in diameter. These journals, resting in very heavy bronze lined bearings, support the drum. The entire body of the drum is strongly reinforced with angle and tee irons. A door is located in the side of the drum and is so constructed that it can be loosened or securely fastened with ease. This arrangement is clearly shown in the accompanying illustration. Angle irons are fastened on the interior of the drum to aid in tumbling the wood. The V-shaped row of rivets, as seen in the cut, show very clearly where these angle irons are secured to the inner wall of the drum.

The drive consists of a cast spur gear and steel pinion with a jack shaft and friction clutch pulley. It is designed to have the drum revolve at about 10 R.P.M.

The power requirements will range from 25 to 40 h.p. per drum with 30 h.p. as an approximate average when operating under full load.

A hopper is constructed directly over the drum for storing unbarked wood. When the drum is to be operated, the side door is opened with the opening in such a position that the wood can be dropped into the drum from the hopper above. As soon as filled, the door is tightened, and the drum revolved. During the barking operation, the drum is kept half full of water. This water is commonly heated with steam or hot water and is constantly admitted through one of the hollow trunnions, the overflow passing out through the other and taking with it the bark which has been separated from the wood inside of the drum by water and friction.

After the drum has revolved for a period of time, sufficient to remove all of the bark from the wood, it is stopped with the door side up. The door is then unbolted and the drum turned so that the opening is down. The wood falls through the open doorway to a conveyor located beneath the drum. The wood is at this point washed as it travels toward the chippers.

This type of drum has a capacity of from 20 to 40 cords per 24 hours when operating on round pulpwood. It is particularly well adapted to barking slabs, edgings, and small round wood. Such material can be up to 8 feet in length. Claims are made that wood as small as 1½ inches in diameter can be handled to advantage.

It was often difficult, with this type of equipment, to tell, until the drum was opened and the wood sorted, whether each log in the charge had been properly barked. This condition as well as others brought about the design of the continuous barking drums of which up to the present a number of designs have been built and put into operation. The earlier

types were commonly constructed of angle or channel irons with the flanges pointing inward. This construction caused considerable brooming and splintering of the wood bolts and also caused pieces of bark to be embodied in the broomed ends. This embedded material could not be removed in the operations which followed and therefore was often found in the finished pulp. It was also difficult to bark the bolts sufficiently clean. Breakdowns were frequent due to the shocks and stresses of the tumbling blocks within the drum. The older types are being rapidly discontinued and units having a relatively smooth inner surface are replacing them.

Ideas concerning the construction and operation of these newer types of barking drums may be gleaned from a study of three different makes of drum, namely—American, Paulson and the Waterous.

The American Barking Drum

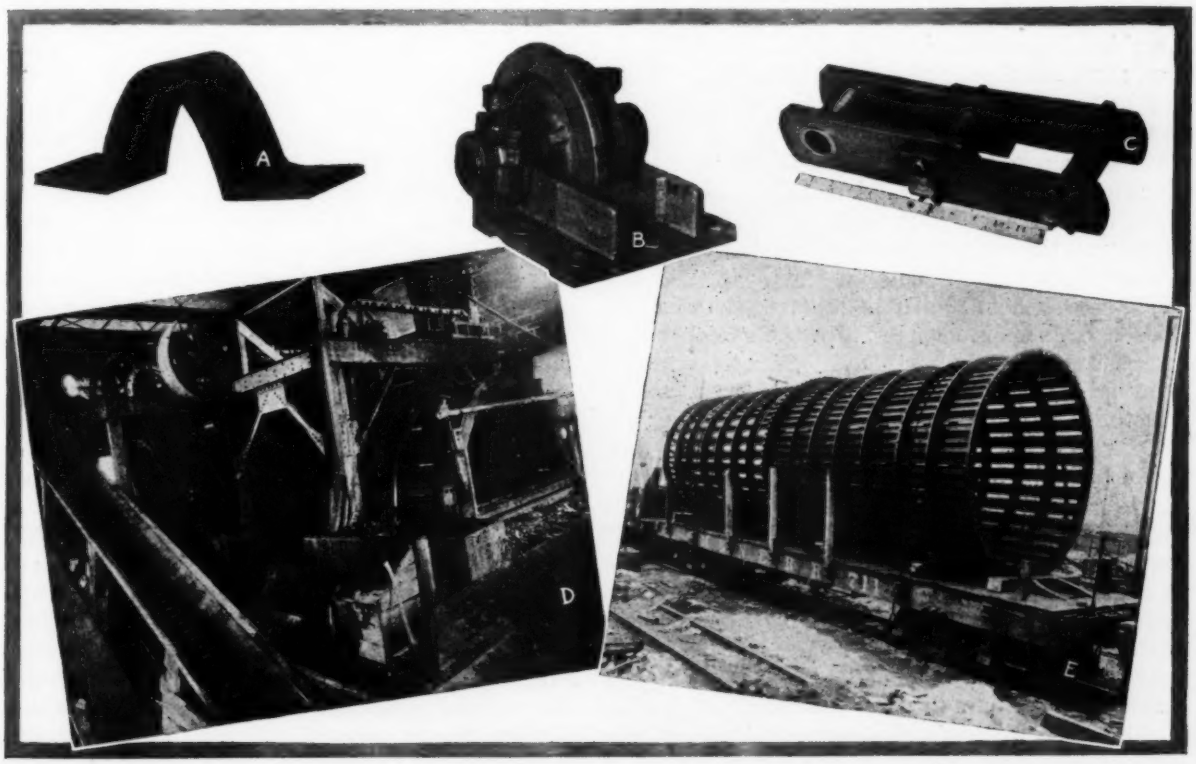
The American Barking Drum is commonly built in one section although where local conditions demand, more than one section may be used. The single section drum is ordinarily built in three sizes, namely 8 feet by 20 feet, 8 feet by 30 feet and 10 feet by 30 feet. The first dimension given in each case refers to the diameter of the drum, and the second dimension to the length. The 10 feet by 30 feet drum is generally considered as the most economical design and it is this size that is found in the majority of installations.

The main feature of the drum shell is the heavy special U-shaped bars. The U-bars run the entire length of the drum and are spaced to present a corrugated interior surface which aids in "picking up" and tumbling the wood.

The importance of strength in the construction of any type of barking drum cannot be too strongly emphasized since any weak points are very apt to give trouble during operation of the equipment. The following cut shows a section of an individual U-bar while details in the construction of the entire shell are brought out in the illustration. (*Drum Shell of American Barking Drum.*)

The spaces left between the U-bars in making up the shell are of sufficient width to allow the bark to leave the drum after removal from the wood bolts. Bands are riveted on the outside of the U-bars to form and complete the shell. In addition to these bands a number of traction rings (generally four) and a sprocket ring (surrounding the drum at the middle) are also riveted to the exterior of the drum and thus insure increased strength of the unit.

The drum is suspended in heavy chains—one for each traction ring from a structural framework, as shown in the cut—installation of an American Barking Drum. The drum has no bearings underneath so that the free use of water is facilitated. A heavy six-inch pitch carrying chain with single side bars is used in the latest designs for carrying the drum



Courtesy Fibre Making Processes, Inc.

A—U-Bar Used in the Construction of American Barking Drum. B—Guide Roll Bracket of American Barking Drum. C—Six-inch Pitch Carrying and Driving Chain. D—Installation of American Barking Drum. E—Drum Shell of American Barking Drum

while the chain with double side bars may be found in some of the earlier installations. This chain is illustrated in the cut designated *(Six-Inch Pitch Carrying and Driving Chain)*. These carrying chains engaging the traction rings run over heavy traction wheels clearly shown in the cut of the barking drum installation. Spring takeups are provided on the traction wheels on one side of the drum to take up any slackness in the chains when they stretch and to absorb shocks or overcome unequal loading of the carrying chains.

The lower half of the drum is surrounded by a semi-cylindrical tank which may be filled with water so that the drum may be operated "wet" or "dry" as desired.

Sweepers or scrapers are bolted on the outside of the drum to remove the bark from the bottom of the semi-cylindrical tank and deliver it to some type of conveyor for removal from the machine.

Two guide rolls are located at each end of the drum to hold the drum in position. They are placed in heavy brackets with bearings and are attached to the upper portion of the tank. One guide roll may be seen near the front end of the shell in the previously mentioned installation. Details of their construction may be learned from a study of the illustration *(Guide Roll Bracket of American Barking Drum)*.

The dam at the discharge end of the drum is so built that the length of time of barking may be regulated. The lower portion of the dam is of concrete while the upper portion is of structural steel and removable channel irons. The regulating arrangement as well as shower pipe for washing barked wood may be seen at the front end of the drum installation referred to previously.

Careful study of the same installation will show the usual method of drive. A motor, located on the top of the frame and at one side is belt connected to a pulley on the opposite side. This pulley is in turn connected through a set of gears to a sprocket over which runs a chain similar in design to the carrying chains. This chain engages with the sprocket ring and causes the drum to revolve. Such an arrangement is always used on the 10′x30′ drum and is sometimes designed for the 8′x30′ drum. Likewise the 8′x30′ drum is sometimes driven in the same manner as the 8′x20′ drum. In this drum all of the carrying chains run over sprockets fastened to a long shaft on one side of the drum. The motor is connected through a belt drive and gear arrangement to the shaft to which the sprockets are attached. Thus the drum is caused to rotate by the movement of the carrying chains.

The standard speed of the 10′x30′ drum is 7½ revolutions per minute while the 8′x20′ and the 8′x30′ drums are operated at 9 revolutions per minute.

The power requirements will vary with the size of drum and will also depend upon the amount of wood apt to be in the drum at the time of starting. The following table was compiled from data received from the manufacturers:

Diameter in Feet	Length in Feet	Number of Sections	Approximate H.P. Requirement	Standard Speed in RPM	Approximate Capacity in Cords per Hour	
					Wood Never in Water	Wood in Water
8	20	1	30	9	2 to 2½	5 to 10
8	30	1	45	9	3 to 3¾	7½ to 15
10	30	1	60	7½	4 to 5	10 to 20

The Paulson Drum

The shell of the drum is made of open hearth steel staves and is of such weight and strength as to compare with the size of the drum. These staves are of ten or twelve-inch channels, approximately ¾-inch in thickness with the flange about four inches deep. The diameter of the drum, depending on the design, is from 8 feet to 12 feet, while the length of the drum varies from 20 to 45 feet. These drums are constructed in sections. The number of sections varies from one to three, depending upon the diameter and length of the drum. The staves or channels of each section, spaced about two inches apart, are riveted with the flanges projecting outward to steel plate heads on the inside which act as reinforcing plates, and are surrounded on the outside by two cast steel tires and semi-steel girth gear of very heavy design. The location of the steel tires and girth gear in relation to any individual section is shown in illustration *(Typical Paulson Barking Drum Installations)*. The tires are riveted to heavy steel saddles or spring chairs which are in turn riveted to the channel sections. These saddles aid in absorbing shocks imparted to the shell by the tumbling of the blocks within the drum.

Each tire revolves on semi-steel cradle bearings which are fitted with cast steel rollers. Each section is provided with one set of rollers which have flanges on both sides to bear against the finished side faces of one of the tires, taking up the end thrust in either direction and holding any section in correct longitudinal position.

The steel plate heads, in addition to reinforcing the drum and supporting the channels, aid considerably in the barking action of the drum by serving as baffles which prevent too rapid discharge of wood. The larger units are also equipped with a circular partition plate which in case of the 10x30 drum makes it practically of two sections. It divides the drum into two parts of equal length. The larger units which are built in multiple sections are also equipped with such a partition, this generally being formed by the heads. The function of this plate is to retard the forward movement of the logs and to retain the bark previously removed in the barking process. Such an arrangement tends to distribute the work among the sections or units.

The intake chute is built of heavy structural steel

and plate. It serves to carry the wood into the drum. The drive may be set level or at a very slight inclination. At the discharge end the barked wood falls on a chute which delivers the logs to a conveyor for removal. An adjustable gate on the discharge apron permits the regulation of the time of barking. This gate may be raised or lowered, thus allowing a greater or smaller amount of time for the completion of the barking operation.

A perforated pipe from which water is sprayed extends the length of the barker, inside the drum. The spray from this pipe cleans the wood and washes loose bark to the conveyor underneath the drum.

The drum is driven from a line shaft which carries the pinions for the main gears. This line shaft, in case of the larger units, is built in sections, with flanged couplings to permit easy removal. The power requirements range from 50 h.p. with a small drum to 125 h.p. with a large drum. The power is so applied that the speed of the drum will range from 5 to 10 revolutions per minute, depending upon the design. The smaller drums appear to be rotated at the greater speeds.

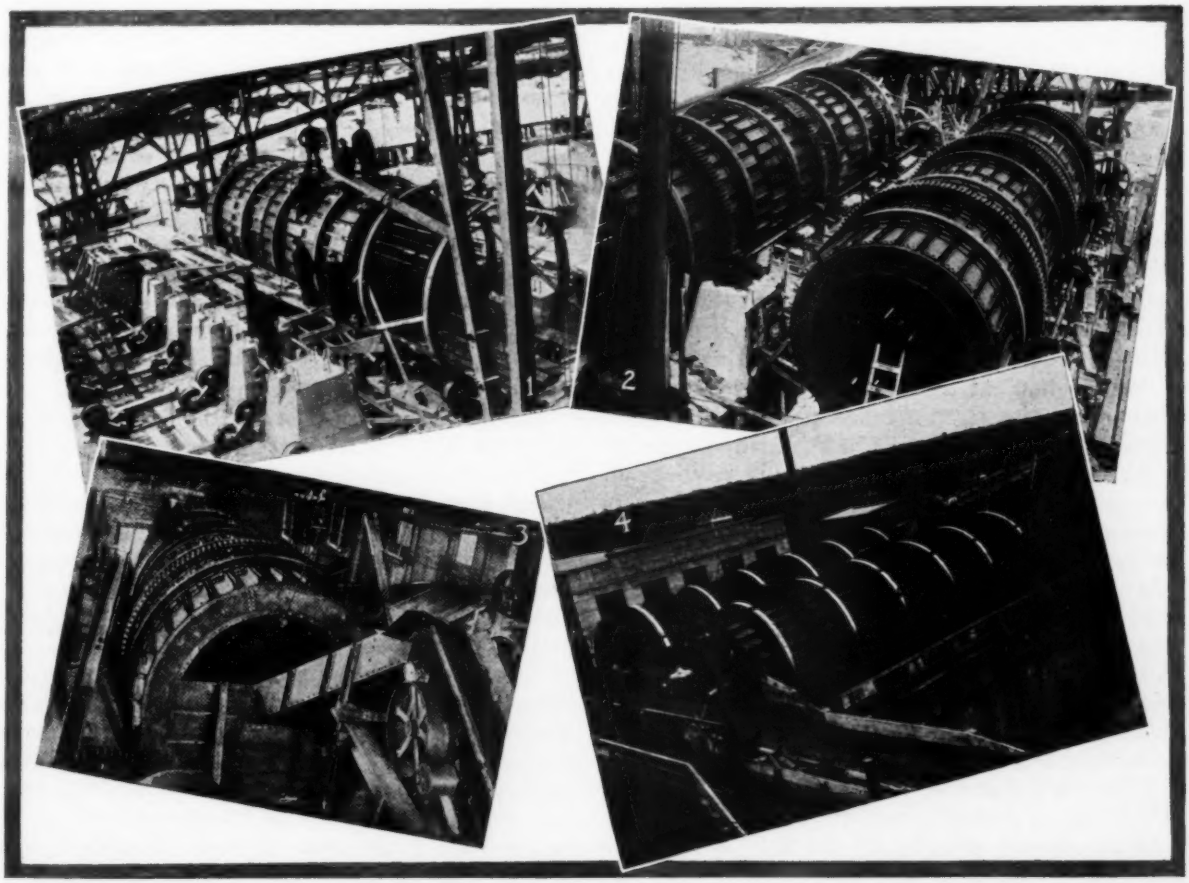
The following table reveals in brief some of the important features of the Paulson Drum:

Diameter	Length	No. of Sections	Approximate H.P.	Minimum Capacity in Cords per Hour
8	20	1	50	3
8	30	1	60	4
10	30	1	75	6
12	30	2	100	10
12	45	2 or 3	100–125	12–15

The Waterous Barking Drum

The third type of barking drum may well be illustrated by citing the Waterous Barking Drum. It is commonly built in four sections and in two sizes. The drums are made with three "dry sections" and one "wet section." The first three sections are designated as "dry sections" since they are operated without water while the fourth or last section is partially submerged in water and is therefore designated as the "wet section." The diameter of the drum, depending upon the size, is either seven feet or ten feet, while the length of each individual section is ten feet, making the total length of the drum 40 feet.

The drum shell is constructed throughout of ½ inch steel plate. A number of specially designed lifting

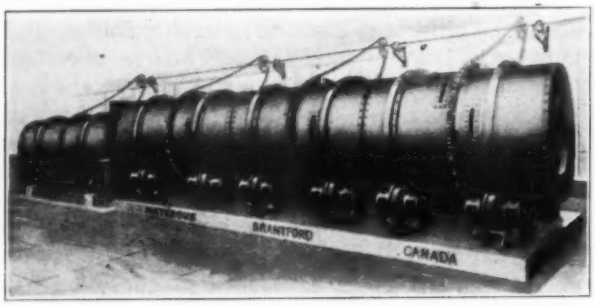


Nos. 1, 2 and 4 Courtesy Canadian Ingersoll-Rand Co., Ltd. No. 3 Courtesy Manitowoc Engineering Works.

Typical Paulson Barking Drum Installations

irons (generally ten) are riveted to the inside of the shell and run the full length of each section. Likewise, ten slots 18 inches long by 2½ inches wide are commonly cut in each section. These slots allow the bark to be removed through them to the outside of the shell. The inside surface of the drum is smooth, with the exception of the irregularity caused by the lifting irons.

Two steel traction rings or tires are riveted to the outside of each section. Each of the traction rings



Courtesy Waterous Engine Works Co., Ltd.

The Waterous Barking Drum

run in two double swiveled trunnions or supporting rollers.

Each section is likewise supplied with a girth sprocket which is securely riveted to the shell about half way between its relative traction rings as noticed in the cut showing installation. This sprocket is connected to a sprocket on a countershaft by means of a suitable drive chain which may also be seen in the cut just mentioned. Likewise, the location of the supporting rollers, traction rings, driving arrangement, and the foundation plans are clearly illustrated. The shaft is commonly built in sections with flanged couplings to permit easy removal as in the case of the Paulson drum.

The four sections are set level but with the last or "wet section" at a slightly lower level than the other three.

The 7 foot by 40 foot drum is operated at approximately 11 revolutions per minute and requires 40 horsepower, while the 10 foot by 40 foot drum is operated at approximately 5 revolutions per minute and requires 75 horsepower.

In operating this type of drum the barking of the wood is accomplished in the dry sections and the bark discharged through the openings in the shell. This bark is generally sufficiently dry to be used immediately as fuel. It is, therefore, conveyed directly to the boiler house.

The fourth section acts merely as a washing drum and any bark that may be removed from the wood in this section is discharged into the sewer.

Claims are not made by the builders for large capacity but rather for the quality of wood after the completion of the barking operation. The comparatively smooth interior surface of the first three sections of the drum with its low operating speed gives a gentle tumbling action to the wood bolts while the last section is used to wash the logs free from dirt and to remove whatever fine bark possible from the ends of the blocks, should they be slightly broomed during their travel through the drum.

The capacity of any barking drum cannot be accurately determined although fairly good estimates can be given from the experience of the designer or operator when any standard type of drum is barking wood of a certain species or woods of different species under a known condition. It is necessary in such an estimate to know whether or not the wood has been in the water. If so, how long and under what conditions was it driven? In general, the longer that wood remains in the water the more readily it barks. Wood driven in streams having rapids will bark more readily than wood of the same kind floated to the mill down streams of quiet water. The time of year in which the wood is removed from the water may also have an influence upon the ease of barking. It is likewise necessary to know whether the wood is to stand in piles after it is hauled from the water, whether it is to be slashed and then stored, or whether it is to be taken directly from the slashers to the barking drums. In fact for an accurate estimate of the capacity of any specified type of barking drum it would be well to have data concerning operations from the time the wood is felled until it is ready to pass through the drum.

Thorne or "Trough" Barker

The latest development in pulpwood barking is the Thorne or "trough" barker, the first barker of this type being developed, built, and operated in 1918. The fundamental purpose in its design was to reduce the manual handling of logs, to abolish slashing or to reduce it to a minimum, and to bark the logs clean without an excessive loss of wood and without brooming the ends.

The following cuts illustrate the construction and operation of a Thorne barker.

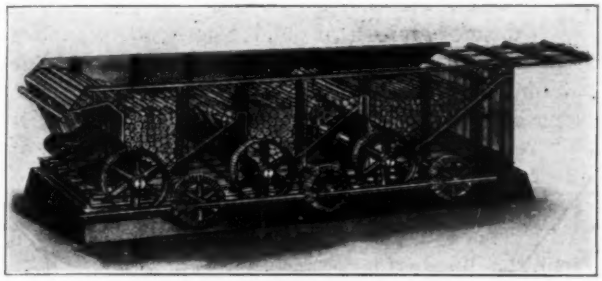
The barker consists essentially of three steel plate trough-shaped pockets with perpendicular ends and through the bottom of which operate a number of double-ended or two-winged typed cams in such a way that they impart to the logs a lifting, falling, and tilting motion with a natural rolling and rubbing action that removes the bark from them.

The length of the trough pockets is dependent upon the length of logs being barked. A fair estimate would be 12 to 24 inches longer than the logs to be barked. It is now possible to bark wood with this equipment in any length from 4 to 16 feet with an 18 foot trough used in barking the 16 foot wood.

The slope, angles, and curves of the pockets were evolved by experiment and study of the motion implied to the logs by the action of the cams. To facilitate the collection of necessary data, observation

holes or grids were placed in the ends of some of the pockets.

In the bottom of each trough are slots through which the double-winged cams attached to a cam shaft operate. The number of cams in any individual trough would naturally depend upon the length of trough. Four cams are commonly placed in each trough that is handling 16 foot wood. The cams are



Courtesy Canadian Allis-Chalmers, Ltd.

Thorne Barking Machine

steel castings about 6 feet in diameter over the tip of the wing and have a 6 inch face. They are so designed that the line of force is normal to the cam face at all parts of the lift. All cams in an individual pocket are set in line but are 60 degrees apart relative to any other line in each of the three pockets so as to equalize the turning effort on the driving motor. Bearing boxes carrying the shafts and cams are located close to each cam.

The cam shafts are driven at about 13 to 15 r.p.m. by steel gears from a main line shaft at right angles to the cam shafts. Such a low speed aids in minimizing shock and results in lower maintenance costs. The main line shaft and gears as well as all bearings are of rugged construction. Each barker is belt driven from a motor which is connected to a pulley on the main drive shaft.

The capacity of machines already installed is at the rate of seven to sixteen cords per hour per unit, according to length. One installation composed of three 16 foot machines barks approximately 1,000 16-foot logs per hour. Another installation barking 4 foot wood for use in bond paper manufacture is handling approximately 25 cords per hour.

About 180 h.p. is required to operate a 16 foot unit, and 50 h.p. for a 4 foot unit.

Chain conveyors introduce the logs to the feed end of the barking system in a manner similar to the removal of logs from the river on a parallel chain log haul. The logs are fed to the pockets continually and are discharged at the opposite side at approximately the same rate as fed. The cams in each pocket working together tend to impart a lengthwise tilting as well as a rolling motion to the logs. This motion causes the logs to rub one another in such a way that the bark is removed. Water, played on the logs in the pockets, washes the loose bark from the logs through the cam slots into troughs below which carry it away.

There is a tendency for some logs to remain in the pockets longer than others. Some logs are also discharged before being fully barked. The percentage of over-barked logs is small, while the underbarked logs are returned to the barker for another passage through the machine. The barked logs discharged from the third pocket are conveyed to the slasher or to the storage pile. The logs passing through the

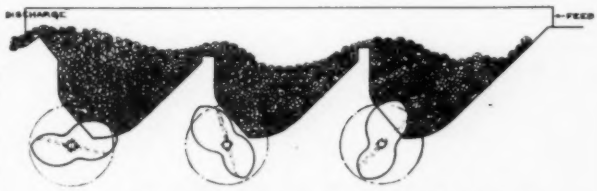
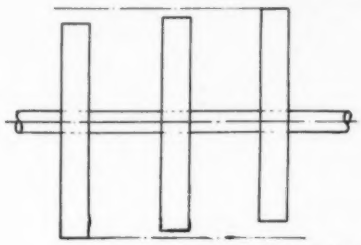


Diagram illustrating general principles of Thorne Barker



Courtesy Canadian Allis-Chalmers, Ltd.

Diagram illustrating setting of cams to produce lengthwise tilting motion

slasher are reduced to 8 foot lengths and are then ready for the chipper. The percentage of wood chips in all probability is increased by feeding such lengths to the chippers. The logs which are conveyed to storage are piled by means of cranes and grapples and are allowed to dry. Logs are taken from the piles as necessary with the same equipment.

(Continued in next issue)

Pump Handles Two Kinds of Stock

In a mill making board from chip and news stock, a two cylinder stock pump is used to pump the stock from the machine chest. There are three valves on the suction line, one close to each chest and one in the line between the two cylinders. The valves can be manipulated so one cylinder pumps out of the chip stock chest and the other out of the news stock chest into separate compartments in the head box, or if it is desired they can be set so that both cylinders will pump out of the same chest.

The same arrangement is used for pumping from the beater chests to the Jordans.

Wood Roll Prevents Fuzz

In a mill where they were having some trouble with fuzz in the paper they found that the sheet was dragging heavily over the spreader at the calenders.

They eliminated this dragging by substituting a crowned wood roll for the spreader, which cured much of their trouble.

Valuable By-Products in Sulphite Mills

By P. A. PAULSON
Appleton, Wisconsin

THE idea of utilizing that substance of the wood which is now being lost in the waste liquor from sulphite mills antedates the invention of making sulphite cellulose, for, when Bachet and Machard, way back in 1867 sought to produce sugar from wood, they incidentally discovered a cellulose substance which proved suitable as a raw material for paper making, and, when Professor A. Mitscherlich experimented in extracting tannin from wood, he obtained as a by-product cellulose, glue, acetic acid and calcium bisulphite.

Dr. C. D. Ekman, who was the first to produce sulphite cellulose on a commercial scale, endeavored for a long time to make use of the substances carried away in the waste liquor, but finally gave it up as unprofitable. B. C. Tilgheman who was the first American to produce sulphite cellulose, also pointed out the value of the waste liquor as a fertilizer and that glue could be produced simply by boiling down the waste liquor.

It was in the year 1874 that the first practical method for producing sulphite cellulose was launched and during the first 15 years all energy was centered on the development of the sulphite cellulose industry; the thought of utilizing the waste liquor was, so to speak, put aside. But with the rapid growth of the industry, there soon developed a realization of the enormous waste taking place, due to the fact that hardly half of the solids in the wood were made use of in the sulphite process. Moreover, the ever increasing quantities of waste liquor that were being emptied into the rivers polluted the waters, and the manufacturers were soon confronted with a rather disagreeable problem. This difficulty made itself felt most strongly in Germany and it was there that some of the most diligent workers started to devote their attention to the question and we have on record the works of Mitscherlich, Seidel and Ulzer, Drewsen and Dorenfeldt, Elkman and many others.

The first question that naturally presents itself is: "What Is This Waste Liquor and How Much of it Is Being Produced?"

Waste sulphite liquor is a coffee brown liquid having a specific gravity of about 1.05 and contains 10 to 13% solids. According to analysis made by Professor P. Klason, one gallon of this liquor contains:

Lignin	.5250 lbs.
Hydrocarbons	.2843 lbs.
Protein	.0131 lbs.
Resin and Fat	.0262 lbs.
Combined with Lignin SO_2	.1750 lbs.
Lime (CaO)	.0787 lbs.
Total	1.1023 lbs.

In the United States and Canada, there is now manufactured daily, approximately 8,000 tons of sulphite pulp. Since the cellulose represents only 50% of the solids in the wood, it naturally follows that the total amount of solids shown in the above analysis also equals 8,000 tons daily plus sulphur and lime which have entered into the solution. There being only about 12% solids in the waste liquor, it will require something like 15,240,000 gallons of water to hold the 8,000 tons in solution.

The next question that arises is: "What Materials with Reasonable Market Values Can Be Derived from the Waste Liquor?"

Several years ago, Dr. Max Muler of Finkenwalde compiled a record of the literature published in regard to waste sulphite liquor, and he unearthed in the neighborhood of some 200 different projects for which the waste liquor may be used; among them are: dye stuffs, impregnating materials, tannin, starches, paper sizing, cement, alcohol, fuel and fertilizer.

Dr. Rinman claims to have found a method for resolving the solids in the waste liquor into methyl alcohol, acetone, light and heavy oils by means of destructive distillation. Other experiments have been made where it has been shown that 2.7 cubic feet of gas and .5 pound of coke can be produced by the destructive distillation of 1 pound of dry material obtained from the waste liquor. The gas would burn with a very intense heat and colorless flame; the coke had the appearance of gas coke although probably a higher percentage of ash. No tests were made to determine the actual heat value of either the gas or coke.

Mention should also be made of the utilization of the waste liquor for producing ethyl alcohol by fermentation, a process which is in use to quite a large extent in Europe and has also been tried in this country. By this process, however, only 20% of the solids are made use of and therefore, does not solve the problem.

The above covers only a few of the experiments that have been made to determine what valuable materials can be derived from the waste liquor. The fact that the materials contained in the waste liquor are of too great value to be allowed to be thrown away, stands out so clearly that further discussion of this question would seem unnecessary.

Economically Removing Water

But hand in hand with the question of what valuable by-products can be derived from the waste liquor goes the questions of how can the waste liquor be

neutralized and how in a most economical way can the water be removed from the solid substances?

It will be the purpose of this paper to deal with these questions in a more detailed manner than with the former.

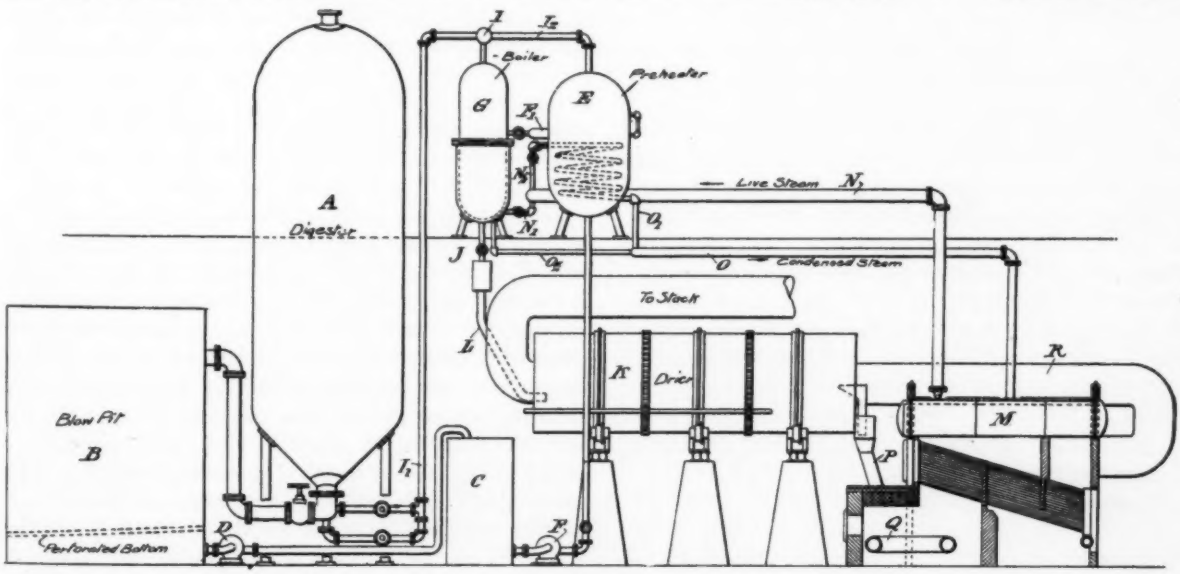
When we sop to consider that in order to obtain 1 pound of the dry substance it is necessary to remove 7½ pounds of water, and coupled with this the fact that a considerable amount of free sulphur dioxide is present in the waste liquor necessitating all apparatus used for the removal of the water to be made of acid resisting material, it is evident that to reduce the waste liquor to a solid by means of the ordinary method of evaporating becomes too expensive. This might be considered the only serious drawback to the solution of the waste liquor problem.

In the following I will offer some suggestions on how the difficulty can be overcome:

When the finished cook of sulphite pulp has been emptied into the blowpit, the waste liquor is removed by allowing it to drain through the perforated bottom of the pit. It is not possible to remove all of the waste liquor by this process of draining. In practice it has been found that only about 1,300 gallons to the ton of pulp can be thus removed. If the value of the product should warrant the extra expense the balance could be removed by subjecting the pulp to pressure or vacuum. For the present we shall deal only with the 1,300 gallons removed by draining. It will be seen then that in the liquor from 1 ton of pulp there is 10,010 pounds of water to be removed in order to obtain 1,365 pounds of solids. To cook one ton of sulphite pulp approximately 7,000 pounds of steam is required. If we now construct an evaporator that will stand the pressure required for the sulphite digester and make it of acid resisting material so that it will stand against the acion of the free sulphur dioxide present in this waste liquor, we shall, by transferring the heat from the steam that is now being used for cooking, into the waste liquor, be able to evaporate 7,000 pounds of water from the waste liquor for every ton of pulp being cooked without any extra cost. The steam thus generated from the waste liquor would naturally go direct to the digesters and with it would go all of the free sulphur dioxide. The extra savings thus affected would not be confined to the actual reclaiming of the sulphur in the gases because these gases would have a helpful influence on the cooking process so that a better quality of pulp and a higher yield would be the result.

For a successful continuous operation, it would be advisable to have a battery of four of the evaporators so that a continuous flow of the waste liquor could enter one apparatus and made to pass from that one into the second and so on. The liquor would then leave the fourth evaporator at a consistency of about 31.5%. At this consistency the liquor can be taken into a dryer in the same manner as is now the practice in Soda and Sulphate mills and the waste heat in the flue gases from the steam boilers made use of to complete the dryness.

In the accompanying sketch, I have shown the proposed method of operation. "A" represents a digester such as is commonly used in the sulphite process; "B" represents a blowpit into which the cooked pulp is blown from Digester "A." The blowpits serve the purpose of separating the waste liquor from the pulp; the waste liquor drains out through the perforated bottom indicated by dotted lines, leaving the pulp behind. The waste liquor is then pumped into a storage tank "C" by means of pump "D." From tank "C" the liquor is pumped to preheater "E" or to the first unit of evaporators "G" (indicated "boiler" on the sketch). The steam generated and the SO_2 gases liberated in the evaporators "G" passes to main header "I" and from there to digester "A" through pipe "II." If preheater "E" is



used a connection "12" is made from it to main header "I." The concentrated liquor leaves the last unit evaporator "G" (not shown in sketch) through pipe "J" and passes to drier "K" through pipe "L." The steam which is ordinarily used for cooking the pulp in digester "A" is used for preheating the liquor in preheater "E" and evaporating in evaporators "G." This steam is generated in a steam boiler "M," having a firebox and grate or stoker "Q" of any suitable construction. The steam passes from boiler "M" through main steam pipe "N," entering evaporators "G" and preheater "E" through pipes "N1" and "N2" respectively. The condensed steam from preheater and evaporators leaves through pipes "C1" and "O2" and returns to steam boiler "M" through pipe "O."

In the waste liquor from one ton of pulp that now enters the dryer from the evaporators there still remains 1,010 pounds of water to be removed before we obtain the 1,365 pounds of dry solids. Our clear gain will, therefore, be 1,365 minus whatever fuel is required to evaporate 3,010 pounds of water. Since the waste heat in the flue gases from all the fuel will be made use of for this purpose, it is safe to assume an evaporating factor of at least 7½ pounds of water to the pound of fuel and we shall therefore have to deduct 400 pounds from the 1,365 pounds leaving a net reclaimed dry substance of 965 pounds per ton of pulp produced.

The heat value of this material is 8,500 b.t.u.'s per pound of the dry substance, which is approximately 70% of that of coal, so that if we use it for no other purpose than to replace coal, we shall have a fuel material equal to 965 x .70 or 675 pounds of coal for each ton of sulphite pulp produced.

The sulphur reclaimed is also worth taking into account because the waste liquor contains about .1% SO_2 amounting to approximately 11 pounds per ton of pulp and the value of it, mixed with the steam going to the digesters is even greater than that of pure sulphur.

Reclaiming Cost

Let us now consider the cost of reclaiming these by-products. Let us assume that the equipment required to handle the waste liquor from a 100 ton sulphite mill will cost $120,000; from estimates made by manufacturers of such equipment the cost would be considerable less, but we must be conservative. We will say 310 working days in a year, allow 6% interest on the investment, 10% for depreciation, three men at $5.00 per day for supervision and the cost for handling the waste liquor from one ton of sulphite pulp or in other words to reclaim 965 pounds of by-products plus 11 pounds of sulphur dioxide will be as follows:

Interest on investment	$0.23
Depreciation	0.30
Labor	0.15
Total	$0.77

In the foregoing I have centered my thoughts almost exclusively on utilizing the solids in the waste liquor for fuel, although I fully realize that for such a purpose, the lowest values are obtained. What has been uppermost in my mind for many years is to find a method whereby the substances in the waste liquor can be reclaimed without a loss to the manufacturer. Since the objections to the dumping of the liquor into the rivers, where it is said to become a public nuisance and detrimental to the life of fish, are being made stronger year by year, it would seem that any solution that would even pay for itself would receive welcome.

When we once get the solid material separated from the waste liquor so that the research chemist can go out in the mill for samples to experiment on from day to day, I have no doubt but what the problem of resolving the material into more valuable by-products will find an early solution and I am hopeful that before many years these by-products will be helpful in putting the sulphite industry on a better paying basis than it is now.

A Method for Making Hand Sheets in Matching Colors

H. L. RAMMER

Chemist, National Paper Products Company

THE result of the usual methods of making hand sheets in color matching is a rather crude product varying from a lump of dried pulp to a fairly uniform but rough surfaced sheet, depending on the method used. The shade obtained is very apt to be misleading because of the great difference in surface and finish between the laboratory match and the sheet as made on the machine. It is difficult to compare shades when the surfaces of the samples differ greatly. The following method overcomes this difficulty. With the exception of a few modifications, the method was not originated by the writer. It is published with the hope that it will be of assistance to the paper mill chemists and color men to whom the problem of matching a new shade is often a troublesome task.

In working with a small amount of pulp (3 to 4 grams) the coloring, sizing, etc., are usually done by mixing in a wide mouth liter bottle. If these operations have been conducted in a small mixer or miniature beater, a little of the stock, equivalent to 3 or 4 grams of air dry pulp, is placed in a bottle of this description, diluted with water and well shaken. The mixture is then poured on a piece of 60 mesh copper screen (9 inches by 5 inches is a convenient size) which is held in one hand. The screen used should be quite thick and heavy, much more so than Fourdrinier wire. The stock should be poured on the screen carefully to form a fairly uniform layer. A

little practice will enable one to do this easily. Lumps will not prove troublesome but the formation of thin spots should be avoided. Of course, other means may be used to form the sheet, but the above is probably the most rapid.

The sheet thus formed is couched off on a piece of wet felt, covered with another wet felt and excess water removed by passing through a wringer or squeezing in a letter press. A clean pane of window glass slightly larger than the sheet is now covered with a film of oil. This is done by placing two or three drops of medium oil on the glass, spreading it evenly over the surface with the palm of the hand and then removing the excess by rubbing with soft tissue of the paper napkin variety. Cloth is not suitable for this purpose as it removes all of the oil. The top felt covering the sheet is removed and the bottom felt to which it adheres, is placed over the glass pane, the sheet being underneath and next to the oiled surface. A smooth roll (a Nessler tube serves the purpose very well) is rolled with pressure over the felt several times. The roll should be passed back and forth and not in one direction. The sheet will adhere to the glass and the felt is removed. The sheet is dried on the glass (preferably at 90° to 100° C in a drying oven) after which it is peeled off. The surface which was next to the glass will have a very smooth surface and a high gloss and finish similar to that imparted by the calendars.

The only difficulty likely to be encountered in this method is the formation of the oil film on the glass. Too heavy a film will cause the sheet to peel off while drying so that the desired surface is lost. If the film is too thin, the dried sheet cannot be removed from the glass. A few trials when this method is first used will indicate how heavy or thin a film to make. The amount of oil in a suitable film is infinitesimal and does not discolor the sheet.

Waste in the Pulp & Paper Industry

The Drying of Paper

By B. T. McBAIN

Third Vice-Pres., Superintendents' Association

THE best drying system so far devised is the careful conscientious machine tender, who uses his brains and teaches his back tender not only how, but sees that he does what he is taught.

The drying of paper can be made automatic to a certain point, and there are some good drying systems on the market today; but as this is not an advertising story, I will use no names. I have had experience with three or four of them, and they are all good, providing they are properly adjusted, and then kept in that condition. Here again I must say that careful conscientious workmen come into play as important to even automatic drying systems being an entire and complete success.

The story so often repeated that a pound of paper should be dried with not over three pounds of steam removing two pounds of water with heat is probably not stated just as it should be, but, as it is better understood in that way by most superintendents, and these stories are written for superintendents in particular, I am going to let the others figure it out in their own way.

Of course, the mill taking 40 percent of the water out at the presses will dry the paper in the dryers with a lesser amount of steam per ton than will the mill putting the paper at 30 percent dry into the drying section.

I have made this statement before and my listeners stated, "That is so," but further that "it is impossible to dry paper 40 percent dry in the presses." All I can say is that it is being done. That is a separate study —one of press rolls, density of rubber covering, amount of crown and the weighting of the presses.

I have seen some attempts at giving a formulae for the crowning of rolls, but as nearly everybody's rolls are of different diameters and of different lengths I cannot see how this can be given, especially as the different densities of the rubber also must be considered. Suffice it to say, however, that most mills need three to four times as much crown as they are using, and at least twice as much weighting of the levers to get 40 percent dry at the baby dryer.

Here again is a question. With harder rolls and greater weights, the felts do not run as long and the rubber rolls need grinding more frequently. However, there is a point between the saving in cost of steam and extra cost of roll grinding and changing felts, but this must be figured out by each one for himself.

Keep the dryer felts dry—dryer felt dryers pay big dividends.

There is one more point in paper drying and then this story is finished.

The faces of the dryers must be kept clean. I mentioned this in my last story, but I want to make it stronger.

On a Yankee machine with high polished face on the dryer, more paper is dried per square foot of surface than on three or four square feet of ordinary dryers. Why? Because the face of the dryer is per-

fect and allows perfect contact between the paper pressed against it, and its face, thus transferring the heat without any loss by air pockets or air insulation from the face of the dryer to the paper, and evaporating the water that much easier than where the face of the ordinary dryer, rough and rusty in many cases, will not allow the paper to come anywhere nearly in contact with the surface where the heat is held. Try holding a thermometer against the face of a rusty dryer, then grind the face of that dryer and test its temperature again. You will be converted, if in doubt.

There is waste is most mills in the drying of paper, and but few have an idea as to the real reason for this waste, or the way to correct it.

Try what I have suggested and try it long enough so you know what you are doing.

The power of the press often goes to waist.

Super-Power and the Paper Mill

A Comment

By JOHN F. FERGUSON

REFERRING to the article "Super-Power and the Paper Mill" by Mr. Wells, in the June issue of "The Paper Industry," in which he has undertaken to work out a steam and power balance under different conditions for a paper mill of a given capacity, in some cases manufacturing all the power and in other cases manufacturing or generating such power as can be obtained from the steam used in process, heating and drying, and purchasing the balance.

The power question of the paper mill is one of the items of the paper industry that has been sadly neglected, and it is safe to say that the power and steam or heat costs of the paper mill in general can easily be reduced 40 percent and in some individual cases over 65 percent. This apparently is not saying very much in favor of our present efficiencies and results. It is gratifying to note that some, at least, are awake to some of the possibilities that are open for lower power and production costs.

While Mr. Wells has assumed in many cases extreme working conditions of the power plant and ideal mill conditions, they represent what can be accomplished but are perhaps not always practical.

All the power required for the entire paper mills of the class as referred to in Mr. Wells' article can be abstracted from the steam used in process, heating and drying, and in practically all other classes of paper mills (omitting the ground-wood section, if any) excepting some of the highest class of rag stock paper where the power demand is extra high in proportion to the steam demand for process, heating and drying. So that outside of these exceptions there is a very small field for super-power or purchased power supply in this industry. While in some cases it may be necessary to go to extreme pressures such as 1,500 lbs. as referred to in his article, this would not be found necessary very often. In Mr. Wells' article it is quite probable that the total steam as used is somewhat lower than is generally possible in order to meet the varying conditions and if the actual figures were within 15 percent in excess of these, he would still be obtaining remarkable results, any such increase in the steam demand would be favorable in each case in balancing the power and steam demands and reducing the purchased power bill.

In the latter part of the article confined to the plant having steam of 1,500 pound pressure and 900 degrees temperature and super-economy in boiler room, it would appear that so long as we are going after super-economy in the boiler room and special built equipment throughout, we might just as well have super-economy in the turbine room or engine room and accomplish even better results or the same results without going to such extremes.

The steam temperature of 900 degrees represents a super-heat of 304 degrees and when expanded to a back pressure of 30 pounds absolute through a unit of 65 percent efficiency would contain around 80 degrees super-heat in the exhaust, which is not desirable in the paper machine driers on account of the fluctuating temperature accompanying any variations in load of the turbine.

As we increase in working pressures and increase in overall thermal efficiency of the plant we reach a point where it does not pay to superheat steam, in fact at a certain stage it becomes a loss. This point varies under different conditions, space would not permit of going into this in details. At the above pressure of 1,500 pounds per square inch and under the conditions herein considered we have passed the point where there is any gain in superheat to say nothing of the disadvantages accompanying such temperatures. In place of using a prime mover of 65 percent thermal efficiency let us consider a unit of say from 84 to 86 percent. This efficiency can be obtained by going into a more or less special type of reciprocating unit working within the range of initial and exhaust pressures considered.

Now if we consider a prime mover using 1,500 pounds pressure saturated temperature 596 degrees and having a thermal efficiency of 84 percent expanding to 30 pounds absolute using steam at the different stages in expansion (including the final exhaust pres-

sure) for feed water heating, we can obtain a steam rate (exhaust steam available for mill) of less than 10 pounds per k.w. hour generated, or otherwise there would be over 100 k.w. hours of power abstracted per 1,000 pounds of exhaust steam delivered. The balance of the initial steam to the prime mover is condensed in prime mover in giving up heat as work and in the feed water heaters and a very small percentage due to radiation losses. Then the power available from steam of plant under consideration would be:

$$\text{In winter } \frac{56{,}000}{10} = 56{,}00 \text{ k.w.}$$

$$\text{In summer } \frac{41{,}000}{10} = 4{,}100 \text{ k.w.}$$

It will be seen that with the above steam pressure (no superheat) there could be a considerable excess of power in either winter or summer, which would demonstrate that almost any paper mill can manufacture all its own power without exhausting to atmosphere or without wasting any heat to the river or lake as is done in our steam-electric power plants of super-power systems, in fact can in most cases sell power to the super-power systems (at a good profit) much below the cost to generate in the steam-electric central stations of public utilities.

Now in order to just balance up on the steam and power for the plant referred to it will be found that a steam pressure of 880 pounds saturated with a temperature of only 529 degrees F. can meet the power demand under the minimum or summer steam demands; while less than 500 pounds steam pressure (saturated) temperature 467 degrees can meet the power demand during winter and accomplish equal power and fuel results with the case referred to in the other article.

In general practice it will be found that working pressures and temperatures much below these will meet the entire power demand of mills of the class as referred to on account of the greater steam demands.

In view of these possible economies obtainable under reasonable pressures and ordinary temperatures and the use of a more or less special design of prime mover it does not seem advisable to consider such extreme temperatures and a complication of the entire system to meet these super economies.

Pointers for the Engineer

By W. F. SCHAPHORST, M. E.

Will Steam Superheat?

THE writer has often heard this question asked: "Will steam superheat in passing through a reducing valve?" There are two answers:

First—Yes, steam will superheat in passing through a reducing valve if the steam at 100 pounds pressure is dry saturated. That is, if it does not contain any moisture.

Second—It will not superheat if it contains more moisture than 1.26 per cent.

The reason why this is true is that steam at various pressures contains various quantities of heat. Thus, at 100 lb. gauge 1 pound of steam contains 1190.7 heat units; whereas at 45 pounds gauge it contains 1179.1 heat units. If the steam is perfectly dry before entering a reducing valve we have a difference of 11.6 B. t. u. (1190.7 — 1179.1) to take care of, and since heat cannot be lost it will be utilized in superheating the steam.

The specific heat of superheated steam is about 0.47. Knowing this we can compute the degree of superheat by dividing 11.6 by .47, which gives us 24.7 degrees. That is, the steam will have a temperature of 24.7 degrees higher than the ordinary temperature of dry saturated steam at a pressure of 45 pounds gauge. Our steam tables show us that the temperature of unsuperheated steam at 45 pounds gauge is about 292.7 degrees Fahr. Adding 24.7 degrees to this we get 317.4 degrees as the temperature of the steam after passing through the reducing valve, provided it is absolutely dry before entering the valve.

To determine the percentage of moisture allowable in the steam so that as it emerges from the reducing valve it will be "just dry," we find in our steam table that 917.4 heat units are required to evaporate 1 pound of water at 45 pounds gauge. This being the case, and since we have a surplus of 11.6 heat units, by dividing 11.6 by 917.4 we get .0126. In other words, 11.6 heat units are sufficient to evaporate .0126 pounds of water, which is equivalent to 1.26 per cent of 1 pound. Therefore, the maximum allowable amount of moisture is 1.26 per cent.

Steam Flow Meter Advantages

PAPER mill engineers often learn after installing steam flow meters that entirely too much steam is used in certain departments of the mill. Faults are thereby corrected and the meter pays for itself almost instantly. Without meters the existence of

large and costly leaks cannot be detected very easily.

Paradoxical as it may sound, many times it has been found profitable to install a steam flow meter only to learn that it doesn't pay to use steam at all. Thus if a paper mill is consuming considerable steam in one department and the manager is not certain about the profitableness of the steam, a meter should be installed. The meter will give the FACTS. Then, if the meter shows positively that electrical operation would be better than steam the use of steam should be abandoned and electrical equipment installed in its place. Although by so doing the steam flow meter eliminates its own use it is nevertheless good business and good engineering to do so.

Roughly, ever six pounds of steam wasted is equivalent to one pound of coal wasted, PLUS the cost of production of the steam. Save the steam and you save coal, labor, and equipment. Even where fuel is cheap it is poor business to install more boilers and use more firemen than necessary. It invariably PAYS to know where every pound of steam goes and how economically it is used.

Forced draft, chain grate stokers, underfeed stokers, oil burners, powdered fuel, higher pressures, superheat, combustion arches, CO_2 and CO meters, air preheaters, economizers—all of these improvements have contributed admirably to the cheaper production of steam. BUT, if no check is kept on the consumption of the steam after it leaves the boilers, if the steam is wastefully used, of what value are the improvements? If ALL of the steam is wasted it is evident that the improvements are of no value whatever. If NO steam is wasted the full advantages of the improvements are realized, and only then. We can therefore truly say that the advantage of high boiler efficiency is directly proportional to the economy of steam used.

Surely, with all the effort and engineering ability that is being and has been expended on boiler plants to generate more steam per pound of coal, serious attention should be given to the uses of the steam. Flow meters are the best means of collecting data for an accounting system applied to a boiler plant.

How to Measure for Belt Length

LOOK into handbooks and you will find some lengthy formulas on "exact belt length for open or crossed belts." I doubt if anybody ever uses them. They are too long—so long that I won't even copy them here.

Read further in the same handbooks and you are told to "measure" for belt length with a steel tape. That is a much better and simpler method for the average belt man, but it has its drawbacks too. It takes time to measure "clear around" two pulleys and back again. So, I recently hit on the scheme illustrated in Figures 1 and 2. It isn't necessary, you see, to measure "clear around." Just measure "half way around" from A to B, Fig. 1, and multiply by two. The answer is the "exact" belt length.

This method eliminates a vast amount of work. Where a great many belts are to be placed onto a line shaft, two men just move along the shaft—one

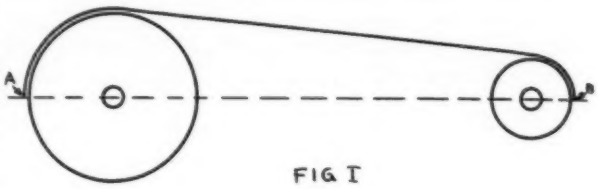


FIG. I

at each end of the tape. The one man placing the "zero" of the tape at A; and the other man taking the reading at B and multiplying by two.

It may seem on first thought and glance that it is difficult to locate the exact points A and B, but not so. Any mechanic, by glancing along the shafting, even without "painstaking care" can locate the point within a very small fractional part of an inch.

Fig. 2 shows how it is done when measuring for

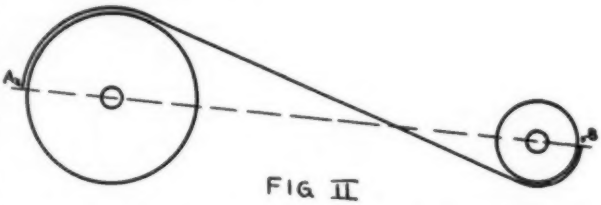


FIG. II

crossed belts. A and B are located in exactly the same way as in Fig. 1.

This method is of further value in that a shorter tape will do the work, which is more easily handled.

If you are still determined to use formulas, though, here is the simplest one that I have ever come across for open belts. In using it you need

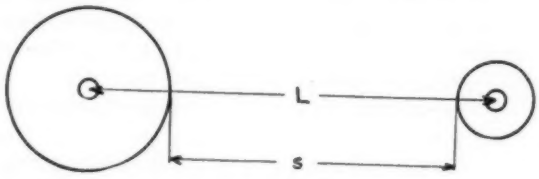


FIG. III

make only two measurements as shown in Fig. 3. Measure the distance L and the distance S in feet and this is the formula:

$$5.1416\,L - 3.1416\,S = \text{Belt length in feet.}$$

However, that formula isn't absolutely accurate. It gives the same answer as this old rule. "Add the two radii, multiply by 3.1416 and then add 2 L." I claim "my" formula to be the simpler because it requires only two measurements. But, as long as you are going to measure anyway, why not follow the

scheme indicated in Figures 1 and 2? You can do it more quickly and get better results.

Temperature Regulators

A DEVICE that has come to the fore very prominently during recent years is the Temperature Regulator. These regulators are made very sensitive; hydraulically operated, self-contained and not self-contained. Regardless of the temperature control problem, the intensity of heat or the range, a regulator surely can be obtained that will handle it satisfactorily.

Napier's Formula

SOME paper mill engineers do not appreciate the value and usefulness of Napier's formula. It is used, generally, wherever steam is allowed to flow directly from high boiler pressure into the atmosphere, as in furnaces for creating draft, in soot blowers, or in heaters, etc. The formula is:

$$W = \frac{p\,a}{70} \quad \text{where}$$

w = the weight of steam in pounds flowing through the area (a) per second;
p = steam pressure in lb. per sq. in.;
a = area of orifice in sq. in.;

To make this formula a little more applicable to meet most engineering conditions, I have converted it into this form:

Cost of steam in dollars per 10-hour day =

$$\frac{9}{35}\,\frac{p\,a\,c}{s}$$

where the additional letters represent the following:
c = cost of coal in dollars per ton of 2,000 lb.
s = pounds of water evaporated into steam in the boiler or boilers per pound of coal.

For example, what is the cost of the steam per day flowing through a ½-inch nozzle for creating draft in a furnace where:
p = 140 pounds per sq. in.

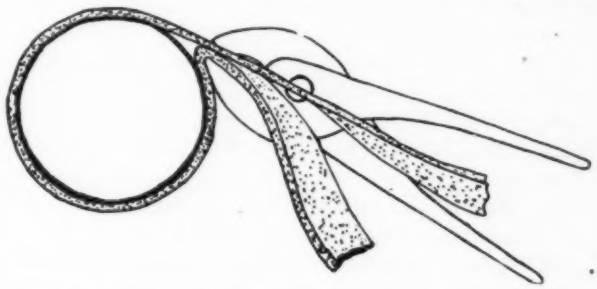
$$a = \left(\frac{1}{2}\right)^2 \frac{\pi}{4} = 0.196 \text{ sq. in.}$$

c = $4 per ton.
s = 8.5.
Substituting in the formula, we get

$$\frac{9 \times 140 \times .196 \times 4}{35 \times 8.5} = \$3.32 \text{ per 10-hr. day.}$$

Handy Wrench Kink

THIS sketch illustrates how easy it is to make a good pipe wrench out of a leather strap and a pair of pliers. Wrap the strap around the pipe, as shown, and grasp both ends close to the pipe with the pliers. If it is desired to tighten the thread turn clockwise as in the sketch. If the thread is to be loosened, simply pull the other way just as in the case of a pipe wrench. This idea is of especial value where the pipe is nickeled and must not be scratched, as the leather forms a cushion between the pliers



and the metal. If it is thought that a single thickness of leather will not be strong enough it is a simple matter to use two thicknesses or more. Thus the method really has no size limit, provided one has a strap that is long enough. What is more, the strap needn't be leather. Any strong, flexible material will do—even rope.

To be sure, a regular pipe wrench is better for actual pipe work, because pipe wrenches are made specially for the purpose, and one can more easily develop a powerful twisting movement through the handle of a regular wrench. Nevertheless, it is well to know about this kind, as we often find ourselves confronted with a job that we think needs a pipe wrench, whereas with a pair of pliers and a strap handy the obstacle is easily overcome.

The Safety Alphabet

ALWAYS Be Careful
Don't Ever Fail
Get Hep
Injury Jars
Kills Lames
Maims Never
Over Prevention
Quibble Remember
Safety Tells
Used Vision
Will Xercise
Your Zeal.
—Making Paper.

Speaking tubes are easily installed and will often save much time and running around in paper and pulp mills.

Cost and Factory Accounting—Part V

By H. M. GRASSELT
American Writing Paper Company

IT IS advisable to furnish the ragroom foreman with a Tally Card for each lot of rags. A card similar to the interspersed Fig. 3 will serve the purpose in every respect. It is a means for checking the entries in Form No. 2, reverse side, and facilitates taking of a physical inventory.

When using a particular lot of rags, the foreman or the person delegated to do the clerical work, crosses off bale after bale as they are being used and enters their individual weights into the tally card of the Bleach Report (Fig. 2). After the lot has been sorted and all bales checked off, the card is to be submitted to the cost clerk, who files it away with the Bleach Reports for future reference.

It happens very often, that from a particular lot of rags only part is taken for the time being and the rest put aside. In this case, the tally card is retained by the ragroom foreman for a record of stock on hand, against which he may easily check his physical count at inventory times.

(b)—Bleach Boiler. There is no need for a special form for cost purposes to cover the activities of the rotary boiler, since the Bleach Report (Fig. 2) contains the necessary columns for the entry of the cooking data. It will be noticed, that this form gives a standard for the rotary boiler as "Cost per Bleach." In view of the diversified classes of rags, each requiring a different treatment and time for cooking, many mills deem it more practicable and better to have a Standard Bleach Boiler Hour rate instead of the preceding mentioned rate per bleach.

The time required for cooking depends on the class of rags, their color and condition. Experience has taught the mills to establish certain standards for the length of time the various grades of rags should be cooked. It is obvious that excessive cooking means waste of time, steam and probably fibre, whereas undercooking causes trouble in washing and bleaching with resultant inordinate consumption of bleach.

Ordinarily, new white linen rags are cooked with a pressure of about 20 pounds for 6 hours; old or gray linens require close to 12 hours at a pressure of approximately 35 pounds. Blue overalls, unbleached shoe cuttings and shirt cuttings require a similar pressure and about 14 hours' time for cooking. No. 1 and No. 2 Whites may be properly cooked in 12 hours at a pressure of 30 pounds, etc. These average pressures carried in the boiler and lengths of time required for cooking are based on a bleach of 4½ tons.

There should be always enough stock cars at hand for the cooked rags. Each loaded car must be provided with a small ticket showing the number of the bleach. The floor beneath the rotary boiler must be kept clean and care taken to prevent foreign substances, such as small pieces of flooring from defective floors, etc., from getting in the cooked rags.

(c)—Washing Process. It is considered good practice to allow the cooked rags to stand in the cars for about 24 hours before putting them into the washers, as this facilitates the dissolving of color and dirt for the subsequent process of washing and gives the half stuff a better color. The washing and bleaching process is one of the most important phases in the manufacture of paper for the quality, appearance and cleanliness of the product depends to a great extent (in ratio to the percentage of rags used in a furnish) on the condition of the half stuff.

For cost purposes, a form similar to Fig. No. 4—Washer Report—will be found sufficient. The upper part of the record serves for the entries by the washing engine operator, who after the completion of a particular bleach forwards the card to the cost man, who in turn makes out the "Summary" by adding the individual entries. The respective totals are entered into the columns provided for under the caption "Summary." Final weight and cost of the half stuff (determined net weight of half stuff and its cost per 100 pounds) are then carried over to the Drainer Inventory (Fig. No. 5).

The Bleach Report (Fig. No. 2) furnished the basic figures for the calculations in the Washer Report (Fig. No. 4).

The time required for the washing process is, like the length of time required for cooking, determined by the class of rags used and generally runs from six to twelve hours. For instance, thirds and blues require about 6 hours, overall cuttings and similar grades 8 hours, linens, shirt cuttings, etc., 12 hours and so forth. In short, rags must be washed until the fibres are properly drawn out and the half stuff clean.

The Washer Report (Fig. No. 4) has columns for the entries of invisible waste resulting from the processes of cooking and washing. Invisible waste is an important factor in the determination of Half Stuff costs. Its percentage will, of course, vary according to the different classes of rags processed. Frequent tests and careful analysis enable to establish fairly accurate average percentages of invisible waste for each grade of rags, that may be applied in cost calculations.

Invisible waste means a loss of material and its calculated weight must, therefore, be deducted from

the weight of the dressed rags (dry weight of dressed rags as reported in the Bleach Report (Fig. No. 2) and its relative cost included in the total cost of Half Stuff.

The Washer Report shows the invisible waste only, since the Bleach Report (Fig. No. 2) takes care of the visible waste, which begins with the removal of the tare. Trade customs allow 3% for tare and packers, as a rule, endeavor to remain within the limits. Any excess that may be found should be charged back to the dealer (Fig. No. 1, Rag Test Sheet, mentioned in a preceding chapter has been introduced for the purpose of recording and calculating of excess tare, etc.). The thrasher causes the next loss, but the waste is here very slight and perhaps not more than 2% in thirds and blues and similar grades and up to about 5% in dump rags. Linens and new shirt cuttings have very little thrasher dust; furthermore, new rags of high grades should be thrashed only in case they are heavy "loaded." Thrasher dust is salable and the calculated returns for the quantity sold or retained for future disposal must be credited to the respective bleach (See Fig. No. 2).

The process of sorting brings the next loss. Here, the percentage varies, of course, also according to the grade of rags. For instance, new cuttings may suffer a loss of only 1% to 2%, while old rags run as high as 6%. Sorting waste is known as "muss" and treated in cost calculations in the same manner as dust.

The process of cutting causes another small loss of waste, known as Dust No. 1. It may run up to perhaps 2%. It is salable and its calculated return is to be credited to the respective bleach, like thrasher dust (Dust No. 2) and muss.

As stated, the waste incurred by the enumerated

Rag Stock

Lot No.....Grade.....Received.....

Shipper.....No. Bales.....

Baled Weight.....Lbs. Dressed Weight.....Lbs.

No. of Bale	Weight	Date Used	Bleach No.	No. of Bale	Weight	Date Used	Bleach No.

Fig. 3. Regular Index. 5 x 8.

operations has a commercial value and can be sold at any time at prevailing market prices. Its percentages are easily determined for each separate operation. Quite different with the "invisible waste" resulting from the processes of cooking and washing. "Spurlos versenkt" of world-war fame, would cover the matter very nicely. No attempt has been made to calculate the loss of each separate operation. In fact, to try to do so would mean additional waste of time and efforts to no purpose whatsoever. It is wholly sufficient to determine and know the total of invisible waste caused by both operations. The average total loss from waste (visible and invisible) runs as follows: New cuttings, if not too heavily loaded with starch or similar material, about 15%, thirds and blues from 20% to 25% and street whites up to 40%.

Frequent tests should be made for the purpose of checking the established percentages and obtaining accurate figures.

There are many mills that entirely ignore invisible waste in their mill records, but add in their final cost summaries and statements a definite amount for it to the cost of the paper. This procedure, as a rule, takes into consideration the invisible waste in beaters and paper machines. In other words, the total waste represents in this case the difference between gross furnish and the quantity of rough paper

WASHER REPORT

Bleach No..... Grade..... Weight per Car.....Lbs.

Date	Washer No.	Cars of Rags	Shavings Lbs.	Time		Time Washed	Dumped into Drainer			Process Supplies		
				Filled	Dumped		No.	No.	No.	Alum Lbs.	Bleach Lbs.	
Totals												

SUMMARY

	Pounds Dry	Unit		Cost		Invis. Waste %	Invis. Waste Lbs.	Cost		Total Cost		Net Weight to Drainers No.	Net Weight to Drainers Lbs.
.....Cars @.....Lbs.												No.	
Shavings												No.	
Total Dry Lbs.												No.	
Net Weight Carried to Drainer Inventory													
Alum													
Bleach													
Departmental Charge													
Total Time Washed						.....hrs. @.....							
Total Charge to Drainer Inventory													

Cost per 100 Lbs. Half Stuff

$.....

Figure 4

made, making, of course, proper allowance for broken credited to the particular run in question.

It is, however, better to calculate visible as well as invisible waste in the respective mill records, as it shows the individual losses from the different grades and provides the management with accurate figures as to the actual cost of half stuff by grades. The cheapest rags procure not always the cheapest half stuff, for excessive waste and labor costs will often wipe out any apparent gain. Statistics of waste will

ened by letting water and bleaching liquid into the drainer before using the material.

Drainer bottoms must be in good condition all the time and cleaned before a new lot of half stuff is emptied into it. Doors must be always closed. Each drainer should be properly numbered and a small wooden box provided near the door, with small cards on which the stock lifter writes the number of the drainer and grade of half stuff. This little card is put upon the car of half stuff carried to the beater room

Sheet No.....

DRAINER INVENTORY

Drainer No.....

Bleach No.	Date Dumped	Grade	Total Weight	Cost		Date Dug	P. O. No.	No. of Cars	Weight per Car	Total Weight	Unit		Cost		Balance and Adjustments

Fig. 5. Regular Ledger Sheet

point in such cases to the more economical use of a higher grade of rags.

(d)—Drainers. The drainer, besides its function of allowing the water to drain from the half stuff, represents the storage room for that material and its contents should, therefore, be recorded in a "Drainer Inventory of Half Stuff." Figure No. 5, Drainer Inventory, shows a simple form, that may be used for the purpose.

The details of the initial entries are obtained from the Washer Report, Fig. No. 4. It is essential to determine by frequent tests the car equivalent of dry half stuff for cost purposes.

Half stuff should be left in the drainers for a period of at least three weeks. If half stuff remains in the drainer for a longer time, it should be fresh-

and used by the beater engineer for the entry in the furnish sheet. Furthermore, a small blackboard on each drainer may be used by the stock lifter to indicate by chalk marks the number of cars he has dug from the respective drainer. This method proves an aid at inventory time as it affords a check on the book inventory of half stuff.

By storing dandy rolls vertically so that the top journal is held in a hole bored in the upper rack and the lower journal resting on a six-inch board nailed to the floor, less space is taken up and they are easily handled.

You cannot afford to take a chance. Work safe, says the National Safety Council.

The Five Factors of Success

By WILLIAM SIBLEY
Conductor, "Editorial Comment on Timely Subjects"

First Factor—Will Power

ON YOUR hand is one thumb and four fingers. Can you pick an article, such as a pin, from the floor, without using the thumb? Not without difficulty. The thumb was put on your hand to enable you to complete a desired action—to grasp things. The thumb represents the **will** of the hand. Without it your hand would be rendered useless, and without will, **you** would be nearly as useless. **With** will, you can say, do or be the opposite of nothing.

Will, to put it briefly, is stubbornness. And you know better than anyone else that at times you are stubborn. Go to the woman who knows you best, be she your wife, mother or sweetheart, and she will tell you of times when you set your hind feet behind, your front feet before, and your hat fell to the ground because of the length of your ears. Every man has a streak of the mule in him. Some men allow this streak to go beyond the mule stage and make an ass of them. So—instead of exercising your mulishness on your unoffending wife or adoring mother, practice it on yourself. Sic it on your desk and your business, and when a problem presents itself, set your feet, let your ears grow, and say, either "I will" or "I won't," according to circumstances.

When you hear a lot of loose talk by some of our would-be economic prophets and business cycle advocates about this being a reactionary, slow year, just tell them that Napoleon said "Europe will be either Cossack or Republican"; that the astute Pitt predicted that the end of the papacy was "in sight"; that Disraeli uttered the statement in '64 that Prussia "is a country without any bottom and could not maintain a war for six weeks." Loose talk does a great deal of damage year in and year out, and it is only because your will-power is lazy that you permit your friends to voice such utterances without sensible contradiction. When, in 1760, Rousseau said "Twenty years hence England will be ruined and furthermore will have lost her liberty"—what chance for accuracy has anyone when he says people are losing confidence in our Government, that the voters won't stick to the two old parties next fall, and that our coming administration will be radical, the consequences of which would throw this country well on her way to chaos—?

Exercise a little stubbornness, a little will-power, on the obviously inaccurate statements made by politicians or newspapers and on the misinformation furthered by otherwise sensible citizens, and both your business and yourself will benefit.

Second Factor—Police Your Mind

If your bookkeeper, or janitor, should leave as much dirt on your desk as you carry around every day in your mind you would fire him on the spot. Dirt is matter out of place. And matter out of place misrepresents. Not long ago I attended a convention of manufacturers. While there I talked with an influential, well respected manufacturer who enjoyed considerable prestige in his community and industry. During this conversation he laid his hand on my shoulder, by way of emphasis, and gave utterance to four or five burning, stinging, scorching, red-hot words of profanity—simultaneously with which his wife put her hand on his arm by way of attracting his attention to her needs. You should have seen his face when he realized his wife had heard him curse! It would have made a good death mask for Dante!! When she disappeared, he turned to me and said: "Sibley, don't it beat hell how this damned profanity misrepresents one!"

Now I am not going to discourse on the detrimental effects of profanity or vulgarity. You have more intelligence than I, and even I know that if you keep that sort of mental filth about you, it will misrepresent you at just the time you least desire misrepresentation.

Lies are another form of mental dirt. Lies, worry, fear, doubt, distress. Of course **you** don't lie—unless you are married! But why allow others to lie to you? You might as well lie yourself as admit a lie from others.

One of the gratifying developments of the past few weeks has been the order given to Washington newspaper correspondents to "play down the investigations." That order should have been given long ago. We should never have heard much of the piffle and bunk that has filled our newspapers during the past several months, for a great deal of it was just unclothed, naked lies. And the real danger in lies is that you, otherwise sane, are liable to repeat them, thus sending them on their destructive way.

Back in the early days one liar said George Washington was a woman-chaser. Another liar said he was a thief. This second liar started an investigation and proved, at least to his own satisfaction, that George had stolen $2,000 from the U. S. Treasury. One newspaper in New York, sixty days before the termination of the Washington administration, said editorially: "If this government can stand two more months of Washington, it will be well nigh indestructible?"

Funny—? No more so than the political lies broadcasted today. Why do you let 'em get away with it? Sweep away the mental dirt—the lies, profanity, doubt and fear. Do it with the same aggressiveness you display in attacking the morning paper and the fervor with which you breath your daily prayer: "Give us this day our daily mail."

Third Factor—Physical Fitness

Chicago lost a man who was and is mourned by thousands the world over. A man of keen wit and perception—Bert Leston Taylor, more widely known as "B. L. T." It was he who said that of all human habits the most dangerous was the "Deadly sitting habit." Hooch, tobacco, opium or profanity do not compare with the "Deadly sitting habit" in calculating effects on the business men, their businesses and their minds.

Go to any club, hotel lobby, or other place where men congregate and you will find there fellows who ensconce themselves in great overstuffed chairs—stick their feet against a wall or a-top a radiator, about 36 inches higher than their heads—that their ideas might run down. Laziness does not breed ambition or efficiency, and the "deadly sitting habit" is nothing more or less than simon-pure laziness.

Never has there been a time, at least since the Armistice, when the general business outlook was more promising than it is today. It is a fact that business is only fair right now; that there has been a material reduction in unfilled steel orders; that wages in some industries are still at war levels; that over-development of productive capacity is having its telling effects; that unemployment is on the increase, and that the recent Congress persistently refused to exercise economy with public moneys.

But—

Look at the condition of Europe today. Far brighter than it has been since 1914. There never was a day when the United States was so much the leader among nations, politically, industrially, economically. Industrial activity has moved westward and will continue in that movement. This stimulates the growth of cities and brings the farmer nearer his market. Since 1880 the wages of workingmen have increased over 400 per cent. Since 1900 the personnel of manufacturing industries has doubled, while the total value of fabricated products is now six times the total as of four years ago. Mechanical means has lifted the drudgery of labor from the shoulders of the workman, and radio is making the transmission of thought and messages a matter of seconds, thus developing greater appreciation for another's problems. Since 1905 the proportion of workers under 16 years of age has decreased 60 per cent.

According to one statistician, the American people spend, every day in the year, over $1,000,000 for coffee, $8,000,000 for milk, $5,000,000 for eggs, $3,000,000 for gasoline with which to run the 11,000 automobiles that are purchased every day. The daily sale of insurance policies exceeds $16,000,000 and one chain of five-and-ten-cent stores sells over $500,000 worth of merchandise every working day. The people in this country go on vacation trips to various points to the tune of $300,000 a day—and they have spent and will continue to spend these amounts every day regardless of temporary business fluctuations.

Now—are you going to lend ear to rumor-mongers and hibernate in a great chair and mope—or are you going to get out and play ball with the kiddies, go swimming, or punish a golf ball—thus keeping yourself physically fit that you may cash in on the silver-lined future. The mind of man cannot conceive the prosperity held in store for this nation by the all-powerful, Supreme Architect.

Fourth Factor—Self Abandonment

Your life is the most important life ever lived—so far as you are concerned. But it is well to keep in mind there are others on this planet and that they have equal rights to all its pleasures. The chap with the self-satisfied sense of being the only man on earth has a lot of trouble. He continually runs amuck with men who do not think as he does and who are not hesitant in saying so.

In one of the remote crevices of the Green Mountains you'll find a little cottage, half-hidden by great, over-hanging trees; the way marked only by a narrow, winding path. At the entrance of this path there is a sign, lettered in a style that bespeaks 1844. This sign bears the legend, in plain sight of every passerby: "There's a cool drink up here. Stop in and refresh yourself." Following the crude finger of the sign you find yourself ushered into a little clearing beside a tumble-down cottage. In the center of this clearing, and in the shade of a spreading Jonathan tree, is a deep well of clear, cold water. At the side hangs a dipper of ample capacity, so that no one need stint themselves of God's greatest bestowal. Just a bit to the left is a bench on which is placed a basket heapingly filled with ripe, red apples. This basket also bears a sign: "Help yourself." The two old people who occupy this cottage are too poor to give to organized charity and they take this means of "living by the side of the road and being a friend to man?" Indeed, this is a true story and the gentle old folks living there inspired Samuel W. Foss to pen his immortal lines, "The House by the Side of the Road."

How long did you say it had been since you sent a word of encouragement to that workman of yours who is now in the hospital? Did you ever write old Tom, or Dick, or Harry a letter of sincere congratulations upon his completion of his twentieth year of faithful service with you? (If he staid with you that long he probably merits congratulations.) Have you sent a check to an organized charity since last Christmas—or are you waiting for next Christmas?

Fifth Factor—Admitting the Glad Things

Just one more little point and I am through. And in bringing out this little but mighty idea I will have to take you back to that thing most of us would like to forget—the war. During the training days at Camp Custer I once met a chap who was filled with fear and doubt. His face was as long as his rifle and he was the worst grouch in the American Army, I do believe. Just before sailing he fell in with a bunch of roughnecks and the next thing he knew he was under heavy sentence from the provost marshal. He was released, however, under penalty of joining another outfit. This prevented me from seeing him until after the Armistice, somewhere near Souilly. (The natives called it "Sou-ee" and we called it "swilly.") I happened to be bumping along in a side car when I heard a "YIP" to one side, and looking about I saw this ex-grouch among a gang of ex-soldiers repairing a road-bed. I stopped and shook hands with him. He was round and rosy and solid, and his face was wreathed in a thousand smiles. His appearance was so foreign to that which I remembered him as having back in the States that I questioned him regarding the transformation. He told me, in his soldier parlance, that he had "canned the frown and convoyed a smile—and found it a hell of a lot better."

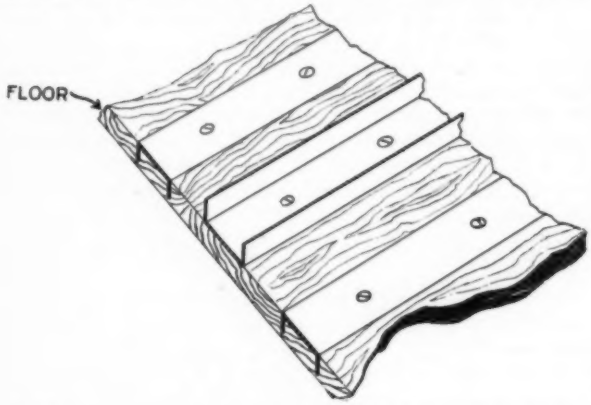
You will find the same. There is a vast difference between a smile and a frown. No one responds to a frown—everyone to a smile. "Loose now and then a scattered smile, and that I will live upon," is Shakespeare's admonition. You know, it requires the activity of 64 muscles to frown, while but 13 are brought to work with a smile. Why work so hard?

Practical Helps for the Mill Man

Channel Iron Track for Trucking Pulp

In trucking pulp through a narrow passageway two men were required for each truck, and quite frequently injuries occurred when uneven spots in the floor would throw the truckload to one side.

By making a track of channel iron which guides the truck and gives a smooth surface, the truck load is now easily handled by one man. The center channel lies flat on the floor and serves as a guide for the front wheel. The two channels running alongside are sunk into the floor and provide a smooth surface for the rear wheels that will lie flat and not bend. The truck used in this instance was a Cowan three-wheeled truck.



Locating Leaks in Chlorine Gas Lines

Leaks in chlorine gas lines are easily located by a cloth on the end of a stick saturated with ammonia moved along the line. Very small leaks will give out white chloride fumes, which are easily seen, while the small amount of chlorine will cause very little odor.

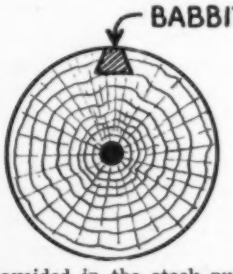
Pulpwood Conveyor Built on Level

In an instance where pulpwood was unloaded from boats, piled on the lake shore and taken to the mill in cars, some kind of conveyor was necessary to take the wood to the point where it could be loaded on the cars.

A V-shaped trough, 4 feet wide and 4 feet deep, built of 2" plank, was placed in the lake running parallel to the shore line, the bottom of the trough extending about two feet below the water surface. Water is pumped in the end by a 12" centrifugal pump which furnishes enough current to carry the 8-foot wood the full 1000 feet. At the bends the trough is lined with sheet iron to prevent the logs catching on the sides.

Repairing Wood Press Rolls

When small rough spots occur in wood press rolls on wet machines from knots or rotten spots chipping out, it is often possible to repair them by cutting out a dovetail hole as shown and filling with babbitt.



It is difficult to make a wooden plug fit properly, and when it does not fit it will wear out the felt. The babbitt poured in this shape will fill the hole completely and will not loosen.

In a boxboard mill where the furnish is mainly waste paper, much trouble was avoided in the stock pumps by placing one-inch mesh wire screens in the beater chests where the beater spout enters. String, paper, etc., are caught on this screen that would otherwise make trouble.

Drill That Bores Square Holes

In a case where it was necessary to make a number of ¼" square holes in a thin board a millwright took a No. 6 triangular file, ground the sides and made a slight groove on one side to make two cutting edges.

This served the purpose very satisfactorily and proved to be a handy tool to use in lacing belts.

Steel Tanks for Cooked Stock

In place of the old method of dumping stock from rotary cookers on the floor and carrying to the washer in carts, steel receiving tanks with a rounded bottom have been substituted in one mill.

The tanks are equipped with a small vertical agitator, the shaft going up through the pump intake pipe and the agitator extending directly above the opening. This stirs up the stock as it leaves the tank where water is turned on. More water is put in just before the stock enters the pump.

The steel tanks have been very satisfactory and this system is a great improvement over the old method.

Bending Pipe with Water

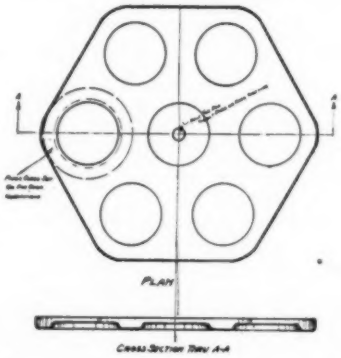
Very good results have been obtained in bending five-and six-inch iron pipe by heating a small part at a time and shrinking the inside of the bend with water.

Even work and difficult bends have been turned out by this method.

Device for Bundling Paper Cores

In the illustration is shown a device for making a bundle of cores from paper rolls for shipment from the publisher back to the paper mill.

Seven cores are placed together so that all sides come in contact, making a firm bundle. A cap with indentation fitting into the ends of the core is then placed over each end. A bolt through the center holds the bundle together.



Rag Catcher for Beaters

A convenient rag catcher which can be attached to an ordinary beater in a boxboard mill consists of a rack made from ½" x 2" flat iron bars placed vertically and bent on the bottom to form a hook.

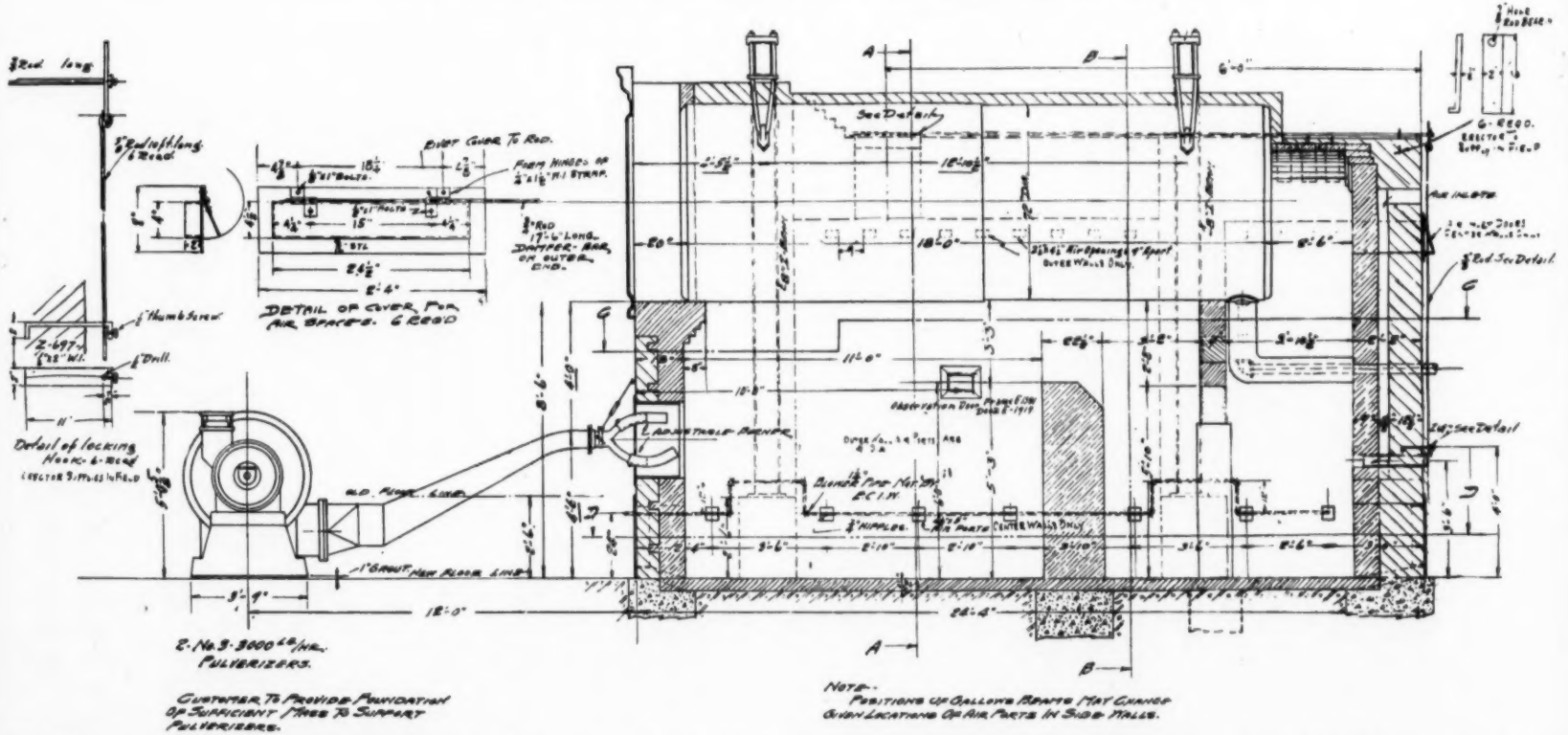
These are attached to a frame which can be raised and lowered into the beater by means of a hand wheel geared to the rack.

Brake Drum Trouble Corrected

The brake drum on the hoisting motor on Shepard crane was giving trouble from the sleeve over the armature shaft wearing on the drum casing, allowing the plates to slip out of place.

By placing a fibre washer at the end of the sleeve this trouble was remedied.

New Pulverized Fuel Installation at Consolidated Paper Co.

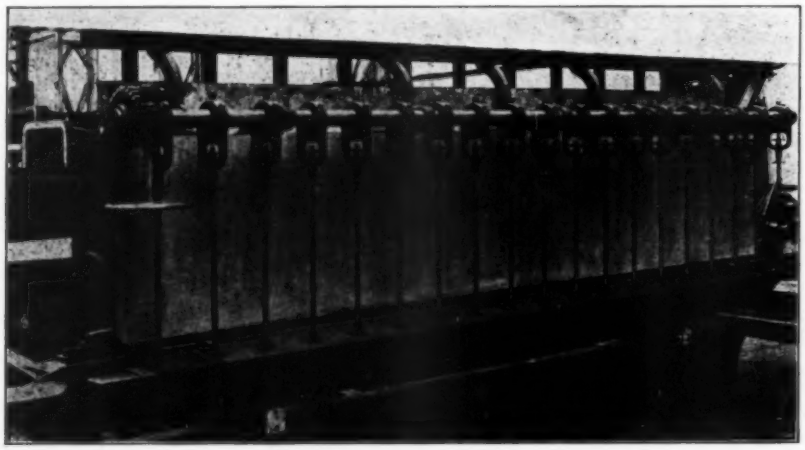

See Detail
DETAIL OF COVER FOR AIR SPACES. G 6000
Detail of locking Hook & Head
2-No 3-3000 LB/HR. PULVERIZERS.
CUSTOMER TO PROVIDE FOUNDATION OF SUFFICIENT AREA TO SUPPORT PULVERIZERS.
NOTE:- POSITIONS OF GALLOWS BRACES MAY CHANGE GIVEN LOCATIONS OF AIR PORTS IN SIDE WALLS.

IN the place of the eighteen 150 H. P., hand fired, horizontal return tubular boilers in their No. 5, 6 and 7 mills, the Consolidated Paper Company of Monroe, Mich., has installed four 557 H. P. boilers of the Erie City design with the Erie City pulverized fuel system. Three of these are now in operation. The saving in labor accomplished by this installation amounts to more than two thirds. Where twenty-seven men were required to operate the old equipment for twenty-four hours, the force is reduced to eight with the new system, two firemen on each shift and two helpers who work nine hours each. With the old system the ash carried from 15 to 50 percent combustible material while with the new system the average is only 0.5 percent. The actual saving in coal is about 35 percent.

After the coal is dumped from the cars it is carried on a belt conveyor over a magnetic separator to an upright bucket conveyor, which takes it up to a screw conveyor over the bunker. This equipment was furnished by the Palmer-Bee Co. From the bunker the coal is fed by gravity to the pulverizers of the No. 3 Erie City type, two of which are required for each boiler. These pulverizers each have a capacity of 3,000 pounds of coal per hour. The powdered coal is blown from the pulverizers directly into the top of the furnace. The ashes which come out in the form of a white dust are handled by a steam jet conveyor which discharges them into a receiving tank.

The walls of the furnace are air cooled, of the Erie City design. To allow for expansion they are slightly curved and have spaces of about one inch at the ends. The air chambers between the firebrick and the outer, common brick serve two purposes in that the passing of air through them both cools the furnace walls and preheats the air for combustion. The furnaces measure 12x15x21 feet deep and are designed to give 6 cu. ft. of combustion space per rated horse power.

The coal used is run-of-mine from Kentucky and Virginia, varying from 12,000 to 13,500 B.T.U. per lb. in heating value. The boilers are ordinarily operated at 250 percent of normal rating.



The Voith *High Pressure* Stock Inlet

The Voith Inlet

1. Makes it possible to speed up the machine as fast as desired.
2. Makes a sheet of uniform thickness across the entire width of the machine, through minute adjustments easily made.
3. Eliminates all slices and aprons, thus reducing the wear on the wire.
4. Gives additional space on the wire for formation purposes. The stock travels the entire length of the wire.
5. Is easily installed and easily operated. It is simple and sturdy.
6. Eliminates foaming and assures a more perfect formation.

VOITH High Pressure Stock Inlets are filling a great and immediate need all over the country. This has been demonstrated not only by its performance but also by the number of repeat orders.

The installation of a Voith High Pressure Stock Inlet means increased production, a better sheet of paper and a saving in the cost of operation.

You need it as badly as every other manufacturer. Do not delay. A letter will bring you immediately all particulars regarding this valuable piece of equipment.

Built only by

VALLEY IRON WORKS CO.

APPLETON, WISCONSIN

New York Office: 350 Madison Avenue

Some Further Notes on the Paper Trade Exhibit at the British Empire Exhibition

I mentioned in my article in the June issue, the names of seventeen British engineering firms who were supplying working parts for the miniature paper making plant at the British Empire Exhibition. The following list now gives the names of the full number of engineering firms participating, together with the parts they are contributing to the combined exhibit:

Charles Walmsley & Co., Ltd.
Stuff Chests, Machine from Breast Box to Reel inclusive, Shake Apparatus, Wet End Lineshaft complete with stands and pulleys, Refiner Header Box, Service Box, Sand Tables and all Piping, Staircase and Protective Rails, also Arrangement Drawings, Shafting and Gearing for Beater Drives.

Bentley and Jackson, Ltd.
Two Beating Engines and one Refiner.

The General Engineering Co. (Radcliffe), Ltd.
Two Centrifugal Stuff Pumps, one Vacuum Pump (belt driven), and one Slitter and Winder.

Mather and Platt, Ltd.
One Back-water Pump with fast and loose pulley and combined bedplate, Back-water Tank, and Fire-proof Door.

The Harland Engineering Co., Ltd.
Patent Sectional Interlock Machine Drive, complete with Motor Generating Set, Switchboard and Control Gear.

The Watford Engineering Works, Ltd.
Strainer.

Crompton & Co., Ltd.
Motors: 1—For driving Beaters, Refiner and Centrifugal Stuff Pumps; 2—For Wet End Lineshaft Drive; 3—For Winder Drive.

Armstrong Construction Co., Ltd., Associated with Sir W. G. Armstrong Whitworth & Co., Ltd.
Steel constructional work for Beater-house. Floor and supports for Back-water Tank.

Vickerys, Ltd.
Felt Cleaners, Cylinder and Calender Doctors and Transporters.

Jas. Kenyon & Sons, Ltd.
Porritts & Spencer, Ltd.
T. Hardman & Sons, Ltd.
R. R. Whitehead & Bros., Ltd.
} Felts and Jackets

G. Christie, Ltd.
C. H. Johnson & Son, Ltd.
Knowles Trotman.
} Wires

Knowles Trotman.
Dandy, Mandrel, Adapter, and Carriage.

Sir W. G. Armstrong Whitworth & Co., Ltd., Elswick.
Gunmetal Shells, Brass Angles and Tees, Brass and Copper Sheets.

Thos. Bolton & Sons, Ltd.
Brass and Copper Tubes for Table Rolls, Wire Rolls, and Wet Felt Rolls.

J. A. Harrison & Co., Ltd.
Rubber Covering for bottom press rolls, also Belting if required, Deckle Straps, Rubber Joints for Vacuum Boxes, and Stauffer Lubricators.

Miller & Co., Ltd.
Chilled Iron Calender Rolls.

Billington and Newton, Ltd.
Gunmetal Hose Taps, Wheel Valves, Phospher Bronze Spring Plates.

Stewarts & Lloyds, Ltd.
Steel Tubes for Dry Felt Rolls and Reel Rolls.

The Budenburg Gauge Co., Ltd.
Steam Gauges and Fittings.

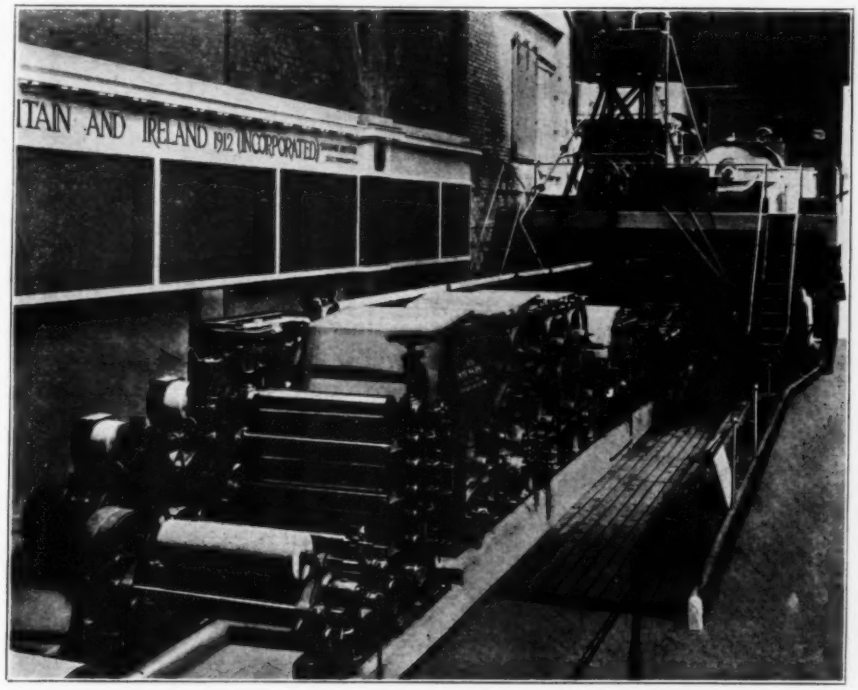
The Hoffman Manufacturing Co., Ltd.
Ball Bearings.

H. Morris, Ltd.
Lifting Gear.

Craven Dunnill & Co., Ltd.
Tilling Stuff Chests.

The Unbreakable Pulley and Mill Gearing Co., Ltd.
Flexible Couplings.

Jas. Byrom, Ltd.
Foundation Work.



Miniature Papermaking Machine at the British Empire Exhibition

Keith & Blackman Co., Ltd.
Ventilating Fan.

Fox, Stockell & Co., Ltd.
Rosin Size.

P. Spence & Co., Ltd.
Alumina.

Carbonite & Arborite Syndicate, Ltd.
Strawboard Centers.

Hunter, Ltd.
Hand Baling Press.

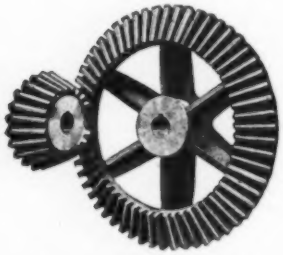
The paper making machine will be run on various grades of paper, and the following list gives the name of the paper manufacturers who are taking turns at running the exhibit at weekly intervals, together with the types of paper turned out by each.

Empire Paper Mills (1922) Ltd., Newsprint.
Edward Lloyd, Ltd., Newsprint.
Peter Dixon & Son, Ltd., Newsprint.
Chadwick & Taylor, Ltd., Newsprint.
Darwen Paper Mill Co., Ltd., Newsprint.
Star Paper Mill Co. (1920) Ltd., Newsprint.
Sun Paper Mill Co., Ltd., Newsprint.
Cooke & Nuttall, Ltd., Wrappings.
Grove Mill Paper Co., Ltd., Wrappings.
Daily Telegraph Paper Mill, Wood printing paper.
Albert E. Reed & Co., Ltd., Wood printing paper.
Imperial Paper Mills, Ltd., Wood printing paper.
Horton Kirby Paper Mills, Ltd., Esparto Papers.
East Lancashire Paper Mill Co., Ltd., Esparto Papers.
J. Tod & Son, Ltd., Esparto Papers.
John Dickinson & Co., Ltd., Fine Papers.
Wiggins, Teape & Alex. Pirie, Ltd., Fine Papers.

In shipping and storing bales of pulp, especially where it is to go a long distance, it has been found that much dust and dirt can be prevented from working its way into the pulp by piling the bales so that the top wrapper overlaps the one on the bottom and does not form a cup on the sides of the bale to catch the dirt.

—for Quality and Prompt Service

The Caldwell Seamless Steel Bucket—Corrugated Type.



Caldwell Gears are made in all types—machine molded and cut tooth.

>FLINT-RIM< Sprocket Wheels last several times as long as ordinary sprocket wheels.

The Caldwell >MULTIROLL< Belt Conveyor Idler. The Caldwell line is complete. We can furnish belt conveyor equipment for handling any materials.

LASTING satisfaction is assured with Caldwell elevating, conveying and power transmission equipment.

This is the inevitable result of a constant effort to build quality right into Caldwell products. Caldwell has upheld the policy of "Quality with Prompt Service."

Whatever your needs in elevating, conveying and power transmitting machinery, there is a Caldwell product adaptable for your use. For prompt information—wire or write Caldwell, or nearest Link-Belt office.

Caldwell Products

Power Transmission Machinery—Bearings, Shafting, Pulleys, Machine Molded Gears, Cut Gears, Rope Drives, Chains and Wheels. Elevating and Conveying Machinery — Helicoid Conveyor and Accessories, Belt Conveyors, Chain Conveyors, Elevator Buckets, Boots and Casings, etc. Catalog sent on request.

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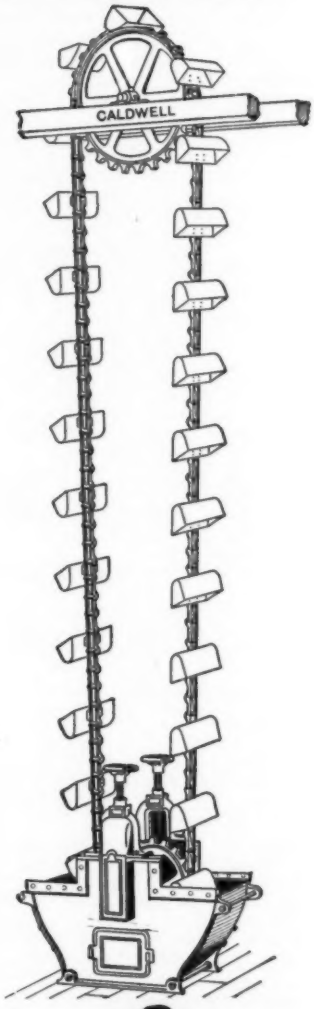
New York: 2676 Woolworth Bldg.
Link-Belt Company Offices in Principal Cities



Caldwell Bearing. C-13

CALDWELL

New England News

Boston, July 1, 1924.

Salesmen's Association Holds Outing

One of the most notable affairs in the history of the Salesmen's Association of the Paper Industry was the outing arranged by the New England division at Stockbridge, Mass., June 20 and 21, which was attended by members not only from New England, but also from New York and other divisions of the association.

With formal luncheon and speaking programs, visits to mills in the Berkshires, and Saturday devoted to motor tours and golf, the outing was so successful that it was proposed before the visitors dispersed to make it an annual affair, in the nature of a salesmen's pilgrimage to the Berkshires each year.

Immediately upon the arrival of the visitors at noon on Friday, the group sat down to luncheon, at which there was a minimum of speechmaking and a maximum of food, and after luncheon the party was taken in automobiles to the B. D. Rising mill at Housatonic, where the process of making fine paper was viewed, special interest being shown in the machine air drying of the paper as it came through the machine. The party then was driven over the beautiful highways of the Berkshires to Pittsfield, twenty miles from Stockbridge, and on a few miles farther to the Crane government mill, where the party was permitted the unusual privilege of seeing the silk-threaded paper for the government money manufactured.

The party returned to the Red Lion Inn at Stockbridge in time for dinner, which was followed by addresses by some of the guests, W. E. Perry, vice-president for New England, presiding. J. L. Fearing, president of the Salesmen's Association, spoke on the import problem. S. L. Wilson, president of the American Writing Paper Co., said that in his opinion the fall buying of paper would begin much earlier than usual. Dr. Hugh P. Baker, executive secretary of the American Paper and Pulp Association, told of the association's belief in the possibilities of the salesmen's association, and how the salesmen's campaign for a fight on the paper bootleggers had assisted the work being done by the central organization.

George B. Gibson, of Chicago, former president of the Salesmen's Association, said he was a messenger of good tidings from the west, where the rise in prices for farm products and the falling prices of general commodities had provided the paper industry with great market possibilities.

Congressman Treadway, who prides himself on being a landlord of the old school, told not only of his pleasure in having the salesmen as the guests of the inn, but also of legislative problems at Washington as they affect the paper industry. He has been a leader in every effort to give the paper industry governmental assistance in its efforts to secure such tariffs as would give the domestic manufacturer an even chance with the foreigner in the home markets.

H. H. Reynolds, former president of the Salesmen's Association, was also a speaker, reviewing the relationship of the paper industry to civilization, saying that through the printed word—possible only through paper—has civilization been making such great strides in recent centuries.

Before adjournment resolutions were adopted thanking the Rising, Crane, Weston and L. L. Brown paper companies for their hospitality, and also Congressman Treadway for the fine talk he gave his visitors.

A dozen golfers spent Saturday morning on the Stockbridge Golf Club links, and some new records for paper salesmen's golf—both high and low scores—were the result. The balance of the party was taken in automobiles to other historic spots in the Berkshires.

Mr. Gibson was a visitor at the New York Salesmen's luncheon on Monday, June 23, when he announced that the Chicago division would hold an outing July 22, plans to be announced later. The New York salesmen will hold monthly instead of weekly meetings during the summer, the next luncheon being scheduled for July 14.

The following attended the salesmen's outing:

T. W. Harrington.
W. E. Perry.
W. S. Cummings, Croder-McElwain Chemical Paper Co.
Henry Lindquist.
Howard Casey.
S. L. Willson, president American Writing Paper Co.
John E. A. Hussey, International Paper Co., Boston.
F. H. Savage, International Paper Co., Boston.
Joseph L. Fearing, president International Paper Co., New York, N. Y.
R. B. Harbison, International Paper Co., Chicago.
George K. Gibson, Wausau Sulphate Fibre Co., Chicago.
Endicott Rantoul, Wausau Sulphate Fibre Co., New York, N. Y.
Charles Wadham, Crane & Co., Dalton.
Edwin C. Chadwick, L. L. Brown, New York, N. Y.
Robert W. Post, Westport Paper Co., Westport, Conn.
Herbert A. Wingate, C. H. Dexter & Sons, Windsor Locks, Conn.
Dr. H. P. Baker, American Paper & Pulp Association.
Arthur B. Daniels, president L. L. Brown Paper Co., Adams, Mass.
Ray Wight.
W. G. O'Connell, Crane & Co.
H. H. Reynolds, B. D. Rising Paper Co.
R. S. Hibbard, B. D. Rising Paper Co.
Philip Weston.
Brenton C. Pomeroy.
William O. Stronach, Byron Weston Co.
Milton C. Murray.
A. L. Newton, Eaton-Dikeman Paper Co.
B. S. Proper.
Willard Smith, Smith Paper Co.
F. A. Juckett, Old Colony Envelope Co.
S. C. Collins.

Are Mills Moving South?

Question is being asked in New England—"Is our paper industry to follow our cotton textiles—to the South?" The South is making strides along many paper lines, particularly in kraft paper production. An allied line-rope paper manufacturer will soon have another addition in the southland, although this time it will be owned and controlled by an old New England mill, Hollingsworth & Vose Co. Mr. Valentine Hollingsworth, to set at rest erroneous statements which have appeared in some daily and trade papers, states that his company has taken up an option on 324 acres of land comprising an old farm near Covington West Virginia. They will *not*, as has been stated, start immediate construction of a paper mill. They have sought to buy a complete paper property for over a year, but without success in finding one that suited their requirements which call for a mill equipped with both fourdrinier and cylinders.

Option was held on the Virginia property. The West Virginian Pulp & Paper Co. nearby attempted to purchase the land at a higher price, so loath to let go of such a promising site the Boston company exercised their option rights and bought. A mill probably will soon be constructed, but not until the end of this year at the earliest and possibly not until 1924. The site is excellent in many respects. Cheap coal, at a fraction of its New England cost, is available. Old rope and bagging, chief raw materials, can be obtained there as easily as in New England. This company's business has been at capacity for nearly two years and they could have used several additional machines during this period. There is no water power on the property, contrary to statements appearing elsewhere.

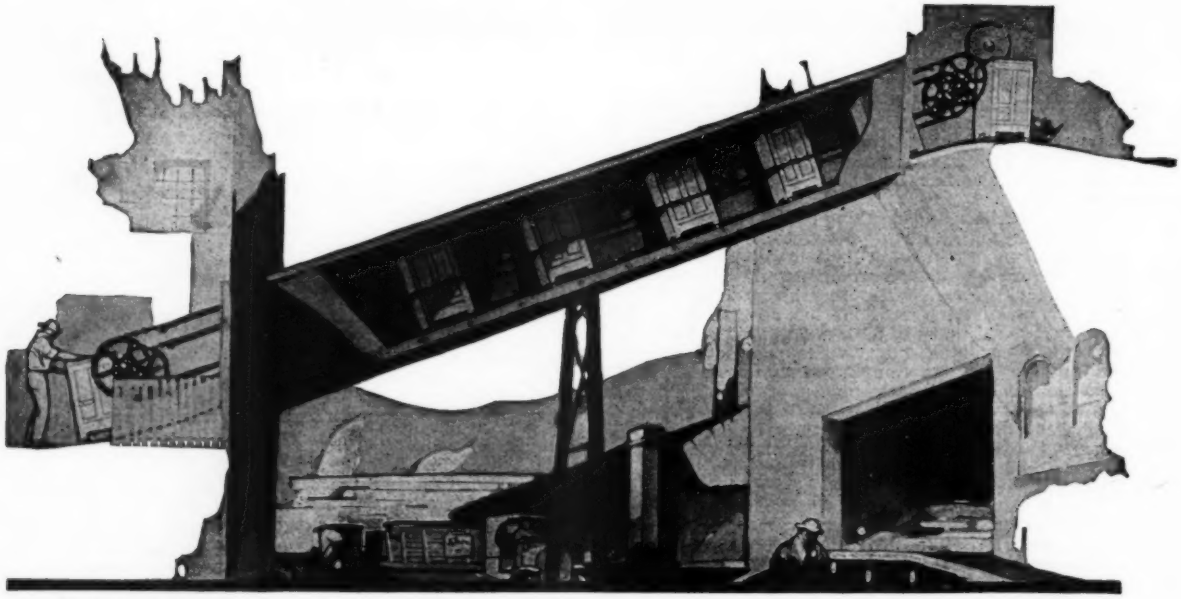
Forestry Discussed at Holyoke

"Four-fifths of the area of Massachusetts is idle, but capable of giving large returns in forest production, while every year the citizen is going deeper into his pocket to pay the cost of government," said Dr. Hugh P. Baker, executive secretary of the American Paper and Pulp Association, before the Kiwanis Club of Holyoke recently. He talked of forestry and the paper industry in the center of the world's greatest center of fine paper production.

"I want to give you Massachusetts people two pictures," he said. "On the one hand we have the picture of a state with only 900,000 acres of its land under the plow out of a total area of 5,321,000 acres. The state has only 65,000 acres out of the 3,000,000 acres which are truly forest land. This picture is one of idle acres in extent equal to four-fifths of the area of the state, giving but a fraction of the percent on the investment which the state has in these lands.

"The second picture is one of increasing taxation and cost of state government. State taxes increased from $7,988,000 in 1913 to $18,513,000 in 1922. The cost of government in the state has gone from $17,052,000 in 1913 to $42,967,000 in 1922. Four-fifths of the state now bringing in but small income might be giving large returns to set over against this increase in cost of government.

"The state is paying a heavy penalty in the higher cost of lumber and other forest products, due in large measure to the high transportation charge on lumber shipped to Holyoke from Louisiana and the Pacific Coast. The state has enough forest land to produce its own lumber in large part and thereby saving the cost of building and in many other ways. The idle acre is as much an economic waste as the idle man."



Brownhoist installed this double strand cross bar conveyor for the Odorless Refrigerator Division of the Tennessee Furniture Corporation.

The equipment saves the work of three men. It also releases its crew of one man for other work during slack periods of the day.

Brownhoist Products

Heavy Dock Machinery
Locomotive Cranes
Monorail Trolleys
Concrete Bunkers
Chain Conveyors
Belt Conveyors
Bridge Cranes
Coal Crushers
Buckets, etc.

Small Conveyors Save Big Sums for Industrial Plants

In almost every plant there are small handling or trucking jobs which add to production costs through wasted manpower and time.

These jobs can be simplified—the waste can be eliminated—the cost can be cut. Brownhoist conveyors are doing exactly this work in scores of plants—large and small.

Brownhoist engineers develop equipment to meet each of these problems individually—and at a cost commensurate with the saving to be effected. Their wide experience will be helpful to you. Their advice is yours for the asking.

The Brown Hoisting Machinery Co., *Cleveland, O.*

Branch Offices: New York, Chicago, Pittsburgh, San Francisco, New Orleans, London, Eng.

BROWNHOIST

MATERIAL HANDLING EQUIPMENT

Continental Passes the Quarter Century Mark

After an entire week of sales convention and joint conferences, business was suspended promptly at 12 o'clock noon Saturday, June 7, and the day was devoted to merriment and a banquet in the evening.

The company was organized in 1899 through the unaided efforts of Mr. Elsas, who at that time was president of the Elsas Paper Co., paper jobbers and manufacturers of paper bags, with a plant located at Laight and Varick streets, New York, of which I. Kuhe was also a director and officer. The first actual operations of the corporate company were started at Rumford, Me., in the spring of 1900, where a splendid new paper bag factory had been completed. In the meantime the Elsas Paper Co. had been absorbed by the Continental, and in December, 1900, the New York branch of the former company was closed. A substantial part of the employees of the Elsas Paper Co. took service with the Continental and moved with their families to Rumford Falls, where there are today quite a number still remaining, among them the important department heads.

The credit for the success of the Continental is due to the foresight of its founder, Mr. Elsas, and the unsparing energy and zeal he and his co-workers have devoted to its growth and upbuilding.

The present officers of the company are Herman Elsas, president and general manager; I. Kuhe, vice-president and sales manager; Owen Shepherd, treasurer; Thomas Fynes, secretary; E. B. Sagendorf, assistant treasurer; J. C. K. Jordan, assistant secretary; D. D. Bradish, cashier, and J. Gautier, assistant cashier.

"Strathmore Town Executives," the mythical organization of business men who inhabit the mythical Strathmore village, met at Woronoco, Mass., on June 2 and 3. The executives of this hypothetical town are the merchants who distribute the Strathmore Papers. They themselves are real enough and gave prove of the fact at the meetings this year. An interesting innovation of the gathering was a meeting on the first day attended solely by the merchants, no Strathmore mill official or representative sitting in. Some propositions were discussed and presented to the company officials which may facilitate business of both mill and merchant. C. Norton, advertising manager of the company, who outlined the coming year's advertising program, illustrated by excellent makeups in black and white and color. At the Hotel Kimball in Springfield an excellent dinner was enjoyed in the evening. The annual election of officers of the mythical "Town" was held with the usual hilarity and humorous results. Col. B. A. Franklin of the Strathmore Paper Co. on the second day of the meeting delivered an intensely interesting address on making profit which opened to the eyes of the merchants mill problems not hitherto completely understood by the merchants.

The Boston Paper Trade Association enjoyed their usual hilarious outing at the Hatherly Country Club and Cliff Hotel, North Scituate Beach, Mass., on Wednesday, June 25. Some 115 members and guests were present. The morning was devoted to golf and a varied sports program, the afternoon to an excellent dinner, community singing, awarding of prizes for the day's events and orchestral music. The Boston Paper Trade Association Golf Cup, which must be won three times for permanent possession, will have inscribed on it this year the name of Mr. Asa Churchill and remain in his possession for the coming year. He was tied with Fred T. Dolbeare, buyer for the Great Northern Paper Co., for first, and a toss of a coin between these two decided the winner. Mr. C. A. Esty received a silver pitcher for best gross score, and W. Edwin Porter and W. W. Binford were awarded prizes for victory in the doubles of the tennis tournament.

James J. Graham Waste Paper Co., Otis Street, Cambridge, Mass., considered one of the largest packers of waste paper in New England, has increased his facilities by adding the plant of the John P. Squire Co., meat packers, located at Water and Erie Streets, Somerville. Two sidings sufficient for the accommodation of nine box cars are part of the new plant's equipment. leading directly to the main line of the Boston & Maine R. R. and to nearby connections with the Boston & Albany and New Haven Railroads. An extension to the plant is being constructed and the plant is being equipped with modern machinery. The old location on Otis Street will be retained and offices will continue to be located there.

A strike has tied up the mills of the Parker Young Company, paper and pulp manufacturers at Lincoln, N. H. A wage dispute is at issue. Unionized employes in the paper and pulp mills walked out July 1 and other employes unionized, in the power company, stores and other local institutions owned by Parker Young Co., threaten to join the movement. Martin Brown, treasurer and general manager, landed in New York from a European trip the day the strike was inaugurated and immediately left for Lincoln where he will assume personal charge of the situation.

A gathering comprising leading New England paper mill superintendents, members of the New England Division of the American Paper and Pulp Mill Superintendents Association, met at Cumberland Mills, Me., on Friday, June 28, for their annual meeting and outing. A complete inspection of the S. D. Warren Co.'s mills was made and an enjoyable outing was held at a nearby seashore resort.

Two actions of contract, declarations on which will not be made public until fall, have been filed by the Hollingsworth & Whitney Co., of Boston, against two former collectors of internal revenue. Each suit seeks damages for improper collection of taxes against John F. Malley and Andrew J. Casey, former tax collectors in Boston. The suits are identical and each seeks recovery of $1,500,000 damages for taxes improperly assessed and collected.

Eastern Manufacturing Co., South Brewer, reports excellent year to date, notwithstanding sharp decline in the volume of business. The company proudly points to its achievements during the past two years, particularly that of its forestry department, which have established the company this year on a self perpetuating timber supply basis, planting at least one young spruce for every one cut for pulpwood.

New England Freight Association has refused to participate in increased rates on newsprint wrapping and bag paper from Northern New England and Eastern Canada to Memphis and Nashville, Tenn. This automatically prevents increases from going into effect by action of the Louisville & Nashville R. R.

Rates on woodpulp from Boston to Ballston Spa, Corinth, Fort Edward, Glens Falls, Hadley, Hudson Falls and Warrensburg, N. Y., have been reduced to 21½c by the Boston & Maine R. R. on imports only. Sharp opposition is expected from New England pulp makers.

Bartol & Healey Co., waste paper packers, formerly Lyons & Bartol, upon reorganization have moved to a new location at 73 Conant Street, Boston, which they have equipped with completely modern appliances, including traveling belts, electric presses and elevators, etc.

Farmington River Paper Mills Company, of Windsor, Conn., has been incorporated in Hartford to manufacture paper and paper products. Capital stock is $50,000. The incorporators include W. H. Kennear, of Orange, N. J., who is president.

Freight rates on china clay from Boston and Portland, Me., to Rochester and Syracuse, N. Y., have been established on a commodity basis of 24c from Boston and 26c New York in response to requests by shippers.

The Holyoke National Bank, of Holyoke, Mass., was forced to reduce its dividend on account of uncollectible paper of the American Writing Paper Co., and the the Whitmore Mfg. Co., paper makers, held in its vaults.

Mississippi Pulp and Paper Co., of Sheldon Springs, Vt., have increased their capital stock to $1,400,000 from $1,000,000. Expansion is reported to be the purpose.

Nathaniel M. Jones

New England paper industry lost one of its most famous sons when Nathaniel M. Jones of Bangor Me., died at his home in Bangor on June 22, at the age of 66 years. A builder of the industry he can be rightly called, for his life was given to construction of paper mills and their management.

He was prominent in the development of the concrete lining

The *New* CLAFLIN Can't Be Beat

for stuff that's hard to beat

IN DESIGNING the new Claflin Refiners, the basic idea was to produce a refiner which would fulfill every beating requirement, withstand the hardest use and abuse and deliver the greatest percentage of properly beaten stock to the paper machine. To say that this objective has been reached is better proven by the fact that many users say the Claflin does better beating, brushing and refining; uses less floor space and power than similar types of Refiners. In fact "Claflins can't be beat for stuff that is hard to beat."

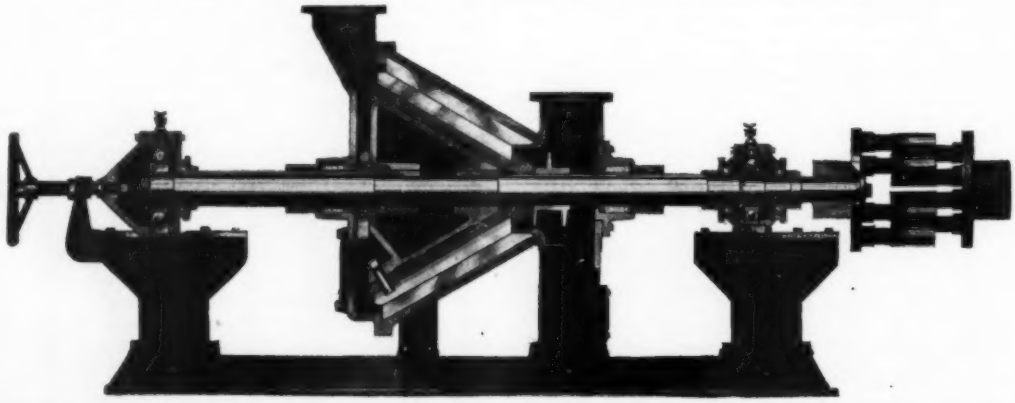
BALL BEARINGS THROUGHOUT

A complete unit will handle the most difficult stock direct from the cooker and prepare it for the paper machine without any necessity of regular beating machines. The pulp will be stronger, finer and more uniform. True, the initial cost of the Full Ball Bearing Type Claflin is a trifle more than the old style, but the saving in horsepower consumed soon overbalances that margin. No stock is too difficult for the Claflin to handle.

The Claflin makes a continuous beating operation possible, a fact which has many distinct advantages. It is now a proven fact that the Claflin cannot be excelled for Rope Manilla, Leather Board, Sulphite Screenings, Wall Board, Kraft Paper and waste from Pulp Stones. When used on Sulphite Screenings the waste pile is smaller and the profits bigger.

Write for catalogue ***Built in three sizes***

HERMAN MANUFACTURING CO., Lancaster, Ohio



for sulphite digesters, a forward step in the paper industry which only paper mill men can appreciate to the fullest. Among the enterprises with which he had been connected as promoter, constructor or manager are the Howland Pulp and Paper Co. mill at Howland, Me., now part of the Advance Bag and Paper Co. property there, the Katahdin Pulp and Paper Co., at Lincoln, Me., the paper mills at Au Sable Forks, Lockport and Fort Edward, New York state, the Consolidated Pulp and Paper Co., and the Nashwaak Pulp & Paper Co. in New Brunswick, latter an Oxford Paper Co. subsidiary. He also promoted the construction of hydro-electrical power companies in New England. Activity in politics of his native state included two terms in the state legislature and membership on the councils of Governors Hill and Cobb. His funeral at his Bangor Home took place on June 25 and was attended by scores of paper trade notables.

Walter B. Nye

Walter Brigham Nye, vice-president of the S. D. Warren Co., and one of the men chiefly responsible for the development of the Warren filter produced by the Cumberland Manufacturing Co., died at his home in Chestnut Hill, Boston, on June 6. Mills and offices of the company suspended the afternoon of the funeral.

Mr. Nye was born in 1852, educated in Worcester, Mass., public schools and graduated from Harvard College in 1884. First affiliated with the steel industry, he later became a partner and on incorporation a vice-president of the S. D. Warren Co. He is survived by his wife and brother Arthur E. Nye of Worcester.

C. Ward Comstock

C. Ward Comstock, of Glens Falls, N. Y., forest engineer of the International Paper Co., was tragically killed while measuring a pile of pulpwood at the Van Buren mill of the company. His metal tape accidentally blew against a high tension wire and he was immediately killed by the tremendous voltage.

He was 25 years old and married.

New Catalogs, Booklets, Etc.

(Kindly mention The Paper Industry when writing for these booklets)

AMERICAN BLOWER CO., 6004 Russell St., Detroit, Mich.—A broadside on their "Man Cooling" fans, a large fan for industrial uses.

CHICAGO BELTING CO., 113-125 N. Green St., Chicago.—Three interesting and valuable booklets: "Instructions for Making Leather Belts Endless," with a list and description of the tools and materials needed to do the work; "Pretested Leather Belting—What It Is—What It Means to the Buyer of Belting—and Who Makes It," with a brief history of the Chicago Belting Co., and "Belting in the Pulp and Paper Indpstry," by Killey E. Terry of the S. D. Warren Company, which is a copy of his paper presented at the Northeastern Division of Superintendents' meeting held October 7, 1922, at Lincoln, N. H. This is put out in attractive booklet form.

CHIDSEY CO., 110-112 E. 13th St., New York City.—A folder describing a new patent flashlight that generates its own electricity. No batteries are used, electricity being generated by a small generator inside the flashlight by working a lever on the outside by hand. Simple, easily worked and looks practical, if it will produce a bright enough light for ordinary purposes.

COMBUSTION ENG. CORP., Broad St., New York City.—"Boiler Tests with Preheated Air," by C. W. E. Clarke. This should be particularly interesting as it is claimed to be the first paper ever published for general distribution containing actual test data in connection with the preheating of air for combustion.

DEPT. OF AGRICULTURE (Forest Service), Washington, D. C.—"Idle Land and Costly Timber," by W. B. Greeley, forester, is the title of Farmers' Bulletin No. 1417. This treatise contains many facts of interest to everyone interested in the problem of reforestation.

FOOTE BROS. GEAR & MACH. CO., 215 N. Curtis St., Chicago.—Catalog No. 24, describing the Foote Bros. IXL speed reducers.

GRAVER CORP., East Chicago, Ind.—Survey No. 11, which is a report of an investigation recently made which shows that a Hot Process Softener installed by the Independent Pneumatic Tool Co., Aurora, Ill., is saving them annually $6,810.25 in coal and labor. This is an annual return of over 100 per cent on the investment. A tabulated cost and saving statement is included.

HANNA ENG. WORKS, 1765 Elston Ave., Chicago.—A circular illustrating and describing the Hanna air hoists.

JEFFREY MFG. CO., Columbus, O.—Catalog No. 385, giving extensive data on coal and ashes handling machinery for power houses.

M'CORD RADIATOR & MFG. CO., Lubricator Division, 2587 E. Grand Blvd., Detroit, Mich.—Two booklets, one, describing the part lubrication plays in the dependable operation of heavy machinery and describing their class BA force feed lubricator, and the other, describing their class B lubricator, adapted to small engines and machinery.

SANDUSKY FOUNDRY & MACH. CO., Sandusky, O.—A bulletin describing details and features of their Cycloidal Vacuum Pumps for paper mills.

COE MFG. CO., Painesville, Ohio—Bulletin No. 104, describing the Coe system of drying for board mills.

THE SPEEDNUT WRENCH CORP., 20 E. Jackson Blvd., Chicago.—A broadside about a new wrench they have just put on the market, which they term "the world's quickest nut wrench." It is an entirely new principle in wrench construction.

THE SUPERHEATER CO., 17 East 42nd St., New York City.—"Origin, Development, Results of Elesco" is the subject of a small booklet published by this company. It gives in brief form the history of the company and the growth of its operations up to the present time. The development of the use of high degree superheated steam is traced from the earliest experiments of the late Dr. Wilhelm Schmidt of Germany, to the present tendencies in steam generation in this country.

TIDE WATER OIL SALES CORP., 11 Broadway, New York City.—"An Unusual History of Petroleum," a booklet that lives up to its name, a collection of a series of folders which were sent to the trade on petroleum "facts boiled down to folder size and seasoned with a flavor of pure fancy."

UNION CHAIN & MFG. CO, Sandusky, O.—Catalog No. 24-A, a catalog describing their chains, chain belting and sprockets.

WAVERLY OIL WORKS CO., Pittsburgh, Pa.—"Lubrication Data for Industrial Machines with Lubrication Charts," a booklet giving important information on lubrication, containing charts showing the proper oils and grease to use on any machine or engine.

An Interesting Exhibit

At the recent Superintendents' Convention, held in Miami, O., the Fulton Engineering Co., of Middletown, O., had an interesting exhibit installed in the Miami Hotel.

This was in the form of a miniature Fulton Vapor Circulating System in actual operation, showing the complete

method, except that glass jars were used as a substitute for paper machine dryers.

The jars were approximately 20" high and were connected in a manner so that there would be water constantly flowing into the jars and being extracted by vacuum from each of the glass jars. There was no pressure employed in the jars for forcing the water out. Many superintendents witnessed this exhibit and were greatly impressed with this system.

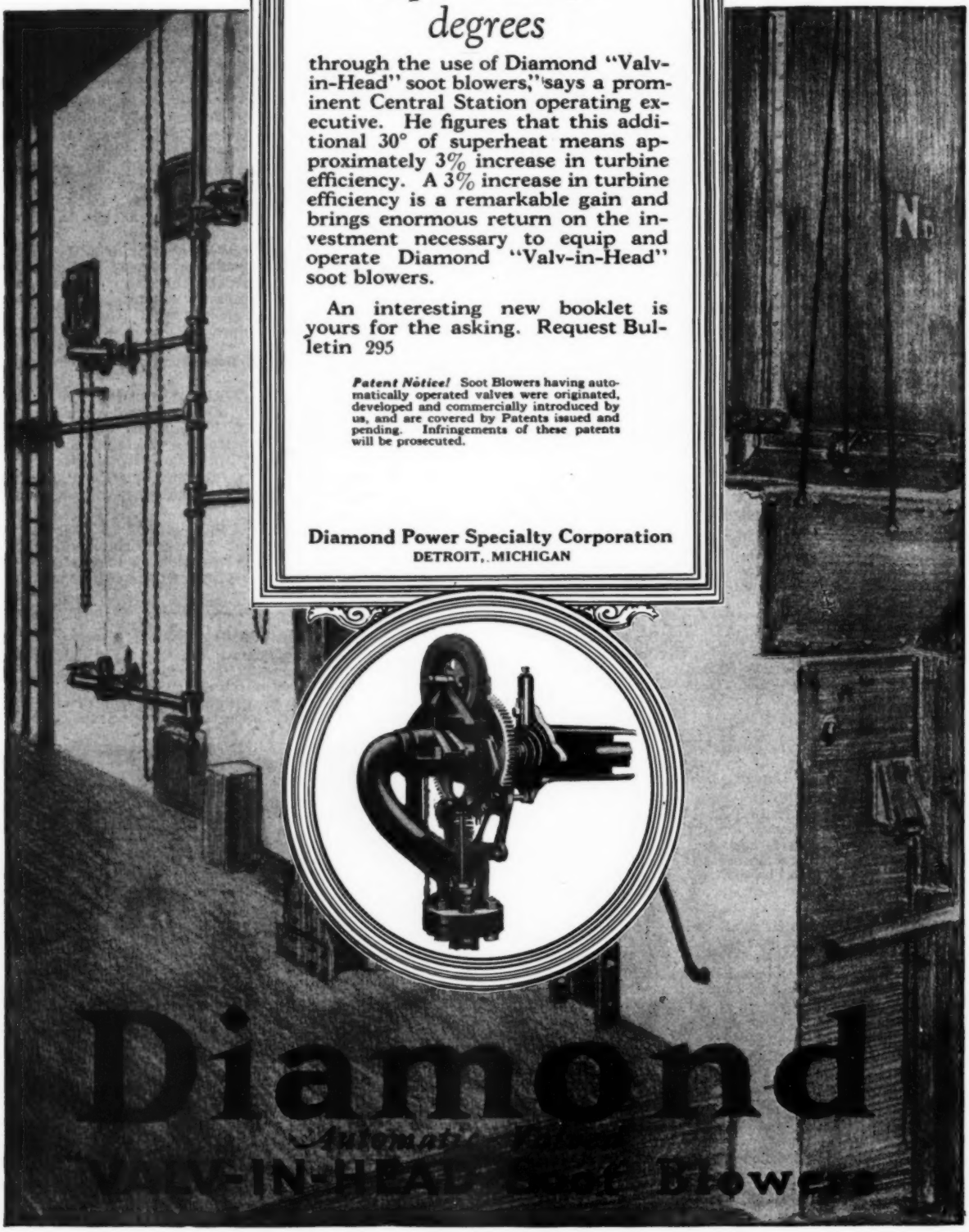
"We have increased super-heat 30 degrees

through the use of Diamond "Valv-in-Head" soot blowers," says a prominent Central Station operating executive. He figures that this additional 30° of superheat means approximately 3% increase in turbine efficiency. A 3% increase in turbine efficiency is a remarkable gain and brings enormous return on the investment necessary to equip and operate Diamond "Valv-in-Head" soot blowers.

An interesting new booklet is yours for the asking. Request Bulletin 295

Patent Notice! Soot Blowers having automatically operated valves were originated, developed and commercially introduced by us, and are covered by Patents issued and pending. Infringements of these patents will be prosecuted.

Diamond Power Specialty Corporation
DETROIT, MICHIGAN



New York City News

New York, July 1, 1924.

Coarse Paper & Twine Jobbers Form Association

A new paper trade association came into being on June 19 when a meeting at the Broadway Central Hotel was held by a group of prominent coarse paper merchants and the coarse paper and twine jobbers of New York City was organized. Benjamin Kushel, of the National Consumers Paper Corporation, presided at the meeting, and was afterward elected president of the new body. Mr. Kushel in a short talk outlined the need for a dignified and well organized association for the promotion of honest and efficient methods in merchandising and for the elimination of existing evils. August Lichtenberg made the following suggestions which had the approval of those present:

1—The elimination of stock over-loading among the paper jobbers.

2—The preparation of means leading to intelligent merchandising.

3—The establishing of an organization emblem and the advertising of same representing to the buying public honest and reliable merchandise.

Harold Ablowich, of the Columbia Paper Company, was elected treasurer of the association, and Mr. Lichtenberg was chosen secretary. Ways and Means and Membership Committees were named.

To Hold Exposition of Inventions

Manufacturers in every American industry will be interested in the Exposition of Inventions, to be held December 8 to 13, inclusive, 1924, in the Engineering Societies Building, New York City. The American Institute of the City of New York is handling this display through its Inventors' Section, with behind it an experience of ninety-six years in fostering and portraying American industrial life.

A feature of the exposition will be exhibits from the leading American industries showing developments of various machines, utilities and processing methods. In all fields the ingenuity of the inventor and the part he has played in the progress of America will be emphasized.

In this display of American inventions the American Institute will be continuing with a new emphasis almost a century's encouragement of inventors and introduction of their works to the public. Among inventions now used throughout the world that were first displayed to the public at earlier All-American fairs of the institute are the Morse telegraph, the Hoe lightning printing press, the McCormick reaper, the Howe sewing machine, the Bell telephone, the Colt revolver, the Francis metallic lifeboat, and many others.

The American Institute also established the first permanent exhibit—an idea later adopted in various industries—where "machines, models, specimens and drawings" were displayed to the public. Great annual fairs of the institute, begun in 1828 and held at such widely known places in their times as Niblo's Garden, Castle Garden, Crystal Palace, Palace Garden, the Academy of Music and Madison Square Garden, in New York City, portrayed year after year the advancement in agriculture, commerce, manufactures, science and the arts until, with the expansion of the country's business in the last quarter century, the idea developed into the more famous world fairs and national and international industrial expositions under various auspices and managements.

Arrangements for the display of working models or actual devices at the Exposition of Inventions can be arranged through a committee of the American Institute at 47 West 34th street, New York City. All proposed displays are subject to approval by the institute, it being the desire to show only those things of sound worth.

Kalbfleisch Corporation Granted Injunction

The Kalbfleisch Corp., of New York, has been granted a permanent injunction against the Providence Drysalters Co., of Providence, R. I.

Lester P. Brown, while an employee of the Kalbfleisch Corp., accepted the offer of a position with the Providence Drysalters Co. An investigation was made in behalf of the Kalbfleisch Corp. by the Pinkerton National Detective Agency and the facts brought out by such investigation resulted in the bringing of a suit by the Kalbfleisch Corp. and the granting of a preliminary injunction. At the hearing on the preliminary injunction the testimony showed that Lester P. Brown divulged confidential information to the Providence Drysalters Co. and its president. E. Fielding Jones, concerning the secret processes of the Kalbfleisch Corp. for the manufacture of satin white. As a result of the testimony introduced at the hearing the decree containing the permanent injunction was granted.

Satin white had been more or less of a standard article until, during the latter part of the past year, as a result of research and development work carried out by the Kalbfleisch Corp. over a period of about four years, a new product was developed superior to the former product. The formula and processes for the new product have been carefully guarded and protected by the Kalbfleisch Corp.

I. P. Denies Riordan Purchase

Rumors which were in circulation in the trade here that the International Paper Company had purchased the Riordan Company, Ltd., of Canada, were vigorously denied by A. R. Graustein, the new president of the I. P. In his statement Mr. Graustein said:

"Many unwarranted conclusions have ben drawn because of the fact that I came to my present position from the Riordan Company. No decision whatever has been reached concerning the purchase of the Riordan interests and no plans have been formulated for financnig it."

The Riordan Company, Ltd., owns two sulphite mills, one with a daily capacity of 135 tons at Hawkesbury, Ont., and another, the largest plant of its sort on the continent, at Kipawa, Quebec, with a daily capacity of 165 tons. The company has been in financial difficulties for some time.

The Scandinavian Export Paper Company, Inc., was recently organized and incorporated under New York State laws to engage in the importation of news print paper from Scandinavia. The company will be managed jointly by Harald Svenson, for the past three years identified with the selling of Scandinavian news print in the United States, and Swen Belfrage, formerly with the Holmens Paper Mills in Norrkoping, Sweden. The company will act as sole selling agent for the Holmens Mills' papers in this country. Mr. Belfrage and Mr. Svenson are vice-presidents of the corporation, and G. M. Spencer is secretary and treasurer. Offices have been established at 120 Broadway, New York.

A. H. White, of the International Paper Company, New York, sailed for Europe on the steamer Scythia June 19 as a member of a party of over 200 electrical, mechanical, marine and civil engineers, delegates under the chairmanship of O. C. Merrill, executive secretary of the United States Federal Power Commission at Washington, to the World Power Conference to be held in London June 30 to July 12 in connection with the British Empire Exhibition.

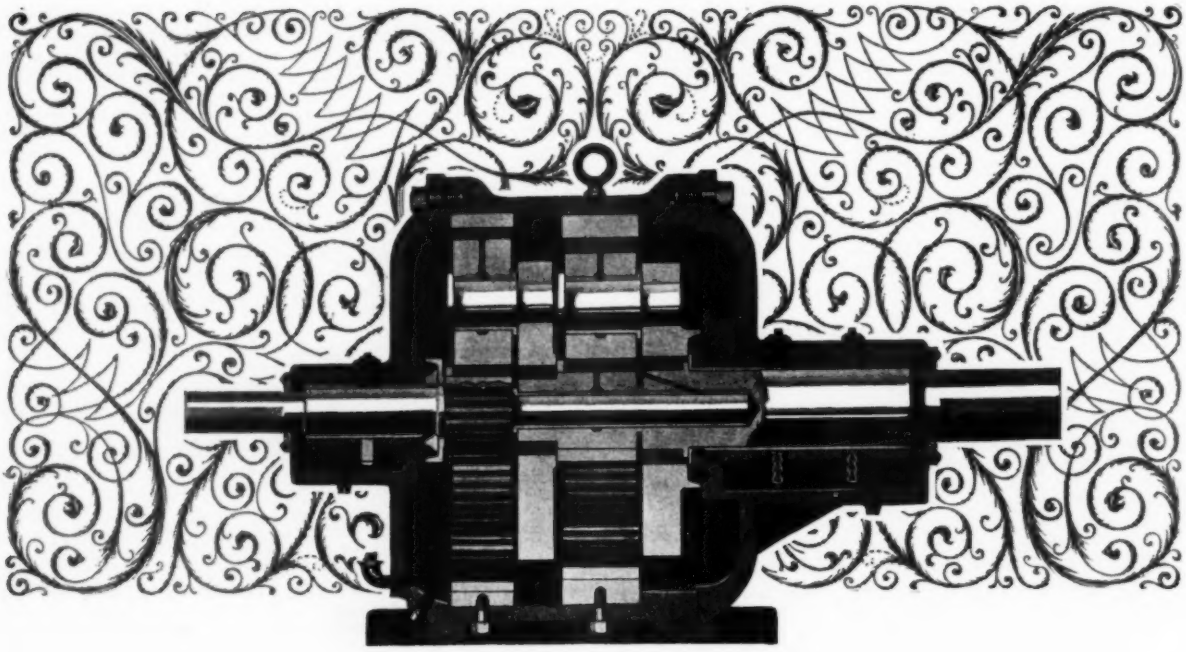
In an annual report issued a few days ago the Casein Company of America reports net income of $220,778 for 1923, against $401,924 in 1922, equal to $1.94 a share earned on the $5,492,000 of common stock outstanding, after allowing for preferred dividends, against $5.02 a share on the common stock in 1922. After payment of all dividends last year the company reported a surplus of $105,553, while the profit and loss surplus on December 31 was reported at $1,209,361.

P. G. Mitchell, a consulting engineer of London, Eng., arrived in New York recently and will spend several months in the United States making a study of the paper industry. Mr. Mitchell only lately built a paper board mill near London along very advanced principles.

The Pulp and Paper Trading Company, of 21 East Fortieth street, New York, has been appointed sole selling agent for the paper output of the Cohoes, N. Y., mill of the Mohawk Paper Makers, Inc.

J. J. Murphy has resigned as president of the J. J. Murphy Paper Company, Inc., jobbers of 97 Prince street, New York, but will continue to be identified with the trade, operating from his office at 108 West Thirty-fourth street, New York. Morris Syrkin has been elected president of the Murphy Company, Louis Syrkin, vice president, and August Aaronson, secretary.

R. Goldstein & Son. for almost 35 years among the leading packers of papermaking rags in the country, with plants at 185 South street, New York, and in Baltimore, Md., have incorporated. Herman Goldstein is president of the new corporation, Max Goldstein is vice president, and Maurice Goldstein is treasurer. The incorporation of the business will effect no change in the policy of the company.



The Advantages of James Design

THE James Speed Reducing Transmission combines a number of advantages that are peculiar to its design.

We not only obtain much higher ratios of reduction in a given space, and with less gears than are possible with other types, but the forces that are a distinct disadvantage in ordinary spur gear assemblies are utilized to produce a more efficient and smoothly operating unit.

All gears are always in mesh and all revolve in the same direction, with a rolling tooth contact, eliminating a reversal of power direction at each reduction stage, and setting up an inertia that has the steadying effect of a fly-wheel upon the whole unit.

The intermediate gears are balanced by the opposing forces of the driving pinion and the stationary internal gear, hence it is obvious there are no overhanging strains on the bearings of the intermediate gears of main shaft bearings.

The pinions, turning planetarily within the stationary internal gear, have the greatest possible number of teeth always in mesh, give greater strength and have the decided effect of quiet operation.

The James Speed Reducing Transmission has kept pace with the most advanced engineering, and it constitutes an honestly built, highly efficient unit that may be applied wherever electric motors are used.

The D. O. James Manufacturing Co.

1114 W. Monroe St., Chicago, Ill.

Manufacturers also of

Spur, Bevel, Mitre, Worm, Internal, Helical and Tractor Gears.
Rawhide and Bakelite Pinions—Racks.

22

D.O.JAMES

M. Gottesman & Company, Inc., wood pulp importers and merchants of 18 East Forty-first street, New York, who represent as agents a number of prominent pulp producers of Europe, are now also agents for the Sunds Aktiebolag, Sweden, who manufacture over 20,000 tons of Mitscherlich strong unbleached sulphite per year.

The Willson Paper Stock Company, Inc., paper stock packers of 452 West Nineteenth street, New York, and Robert Blank, paper stock broker of 140 Nassau street, New York, have been elected to membership in the Merchants' Association of New York.

Marx Maier, widely known dealer in papermaking rags of Mannheim, Germany, was in New York for most of the month of June calling on rag merchants and paper manufacturers. Mr. Maier left for home on the steamer Stuttgart sailing from New York on June 19.

Alexander W. Macvie is now associated with Parsons & Whittemore, Inc., paper and pulp importers and exporters of 299 Broadway, New York, and will handle pulp sales in Michigan, Illinois, Ohio and Indiana. He will make his headquarters at 1414 Fortage street, Kalamazoo, Mich.

Herbert L. Strang, formerly of the Strang Paper Company in this city which business is being liquidated, is now with the Royal Card and Paper Company, jobbers, as a member of the selling force.

Directors of the Continental Paper and Bag Mills met in New York on June 27 and declared initial dividends of 1½ per cent on the preferred and 1¾ per cent on the prior preference stock, all payable July 21 to holders of record July 12.

A petition in bankruptcy was filed June 11 against Nathan Tobey, trading as the Tobey Paper Company, jobber, of 317 East 102nd street, New York. Later the company filed schedules showing liabilities of $10,478 and assets of $2,781.

Nat E. Berzen, dealer in paper mill supplies of 232 South street, New York, sailed on June 7 for Europe where he will spend the summer traveling on pleasure.

Reinhold D. Loewing

Reinhold D. Loewing, who had been connected with the G. D. Jenssen Company, engineers of 200 Fifth avenue, New York, since 1916 as designing engineer, died at his home, 318 West 107th street, New York, on June 11 after an illness of several months.

Before joining the Jenssen staff, Mr. Loewing was for four years with the Ontario Paper Company at Thorald, Ont., his work having dealt with the design, construction and operation of paper and pulp mills. He had been a member of the Technical Association of the Paper and Pulp Industry since 1917. A widow survives.

John E. Meek

John Emory Meek, vice president of the Johns-Manville Company, manufacturers of asbestos and asbestos products, died on May 31 at White Sulphur Springs, W. Va., from an attack of heart disease in his sixty-first year. Mr. Meek resided at 404 Riverside Drive, New York.

He was born in Altoona, Pa., and was a member of an old Revolutionary family. He was prominent in club life in New York, being a member of the New York Athletic, the Sleepy Hollow Country, the Engineers, the Lotos, the Westchester-Biltmore Country Clubs, the Pennsylvania Society and the Sons of the Revolution. A widow survives.

Industrial News Notes

The Robert June Engineering Management Corporation of Detroit, which handles industrial advertising, sales development and engineering management, is moving from its present address at 8938 Linwood avenue to 8835 Linwood avenue. Mr. H. A. Sparrow has recently joined their organization. He is a graduate of Rensselaer Polytechnic Institute with the degree of M.E. He has served in the capacity of assistant sales and advertising manager of the London Steam Turbine Co., of Troy, N. Y., and later as plant engineer with the New York Telephone Co., of Brooklyn, N. Y.

As a result of a recent suit brought about by the Chas. A. Schieren Co., leather belting manufacturers, for infringement of their "Duxbak" trademark, the District Court of the U. S. for Southern District of Ohio has enjoined the Allied Belting Co. from the use of a trademark similar to that of Schieren's "Duxbak."

The S. F. Bowser & Co., Inc., of Fort Wayne, Ind., manufacturers of pumps, tanks, filters, storage, distributing and reclaiming systems for oils and gasoline, report that their financial condition is vastly improved; sales abnormally strong; collections fine; and friends from all quarters have come with proffers of assistance and words of fine encouragement. This is in contrast to a rumor some time ago of a financial depression of that company.

The Austin Co. have recently moved their Chicago headquarters from the Continental & Commercial National Bank Bldg. to the Burnham Bldg., which will enable them to handle their greatly increased business in the Chicago district.

The Perkins-Goodwin Co. have arranged with the Paper Mills Supply Co., Kalamazoo, Mich., to represent them in Michigan, Wisconsin, Illinois, Iowa and Kansas.

Pulp Testing Chemists Approved by Joint Committee

Some time ago the Association of American Wood Pulp Importers, the Technical Association of the Pulp and Paper Industry and the American Paper and Pulp Association appointed a joint committee to prepare a list of chemists whose experience and equipment qualified them for listing as chemists approved by these associations for the sampling and testing of wood pulp.

The committee consists at present of Mr. Alton Faunce, of Price & Pierce, Ltd., chairman; Mr. E. C. Tucker, of the Chemical Paper Manufacturing Co., represented by Mr. W. G. MacNaughton, of the Technical Association of the Pulp and Paper Industry, and O. M. Porter, of the American Paper and Pulp Association.

The committee prepared instructions covering the sampling and testing of wood pulp, based on recommendations previously adopted by a similar committee representing the same associations, and sent application questionnaires, covering experience and equipment, to a large number of pulp testing chemists.

The returns are said to have been gone over with extreme care by the joint committee, and the attached list selected as pulp testing chemists approved by the joint committee.

The object of this listing is said to insure uniform and high standards of pulp sampling and testing in order to protect the domestic manufacturer, the importer and the foreign seller, as well as the buyer and seller in domestic transactions.

Approved list of pulp testing chemists follows:

F. C. Broeman & Co.—F. C. Broeman, 215 E. Fourth St., Cincinnati, O.
Hamlin & Morrison—Chas. B. Coleman, 13 S. Gay St., Baltimore, Md.; John J. Driscoll, 265 N. Washington St., Boston, Mass.; Bayard H. Morrison, Forrest Bldg., Philadelphia, Pa.
Milton Hersey Co., Ltd.—Charles R. Hazen, 84 St. Antoine St., Montreal, P. Q., Canada.
Emil F. Johnson, 125 Maiden Lane, New York City.
K. Hv. Knudson, 104 John St., New York City.
Frank W. Liepsner, 825 Gravier St., New Orleans, La.
Arthur D. Little, Inc.—Roger C. Griffin, 30 Charles River Rd., Cambridge, Mass.
George W. Miles, Ph.B., 88 Broad St., Boston, Mass.
New England Laboratories, Inc.—Harold E. Wicher, 121 Chestnut St., Springfield, Mass.
Northwest Testing Laboratories—Frank H. Conrad, A. L. Knisely, E. G. Riebe, 2113 Third Ave., Seattle, Wash.
Perry Testing Laboratory—Ralph W. Perry, foot of Third St., Detroit, Mich.
Benjamin H. Sherman, Northern Paper Mills, Green Bay, Wis.
Skinner, Sherman & Esselen, Inc.—H. J. Skinner, 276 Stuart St., Boston, Mass.
Stillwell & Gladding, Inc.—Ralph W. Bailey, Henry E. Cutts, 95-97 Front St., New York City.
U. S. Testing Co., Inc.—Harold M. Holmes, 316 Hudson St., New York City.
Wiley & Co., Inc.—Samuel W. Wiley, Calvert and Read Sts., Baltimore, Md.
F. M. Williams, N. Y. Telephone Bldg., Watertown, N. Y.
Allen Abrams, Cornell Wood Products Co., Cornell, Wis.
G. E. Gunton, Gulf Pulp & Paper Co., Clarke City, P. Q., Canada.
Abbot A. Hanks, Inc., 624 Sacramento St., San Francisco, Cal.

THE JOHNSON FRICTION CLUTCH

As Used on Paper and Paper Working Machinery

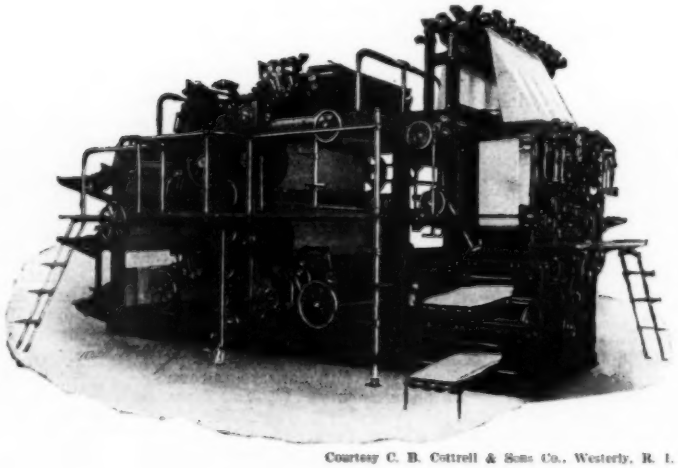
Single clutch with pulley mounted

ON this big Rotary Webb Printing Press, shown below, a Johnson Special No. O Single Clutch is used to drive one of the rollers. For more than thirteen years the Johnson has been installed as standard equipment on these machines.

For Paper and Paper Working Machinery Johnson Clutches have no equal.

They offer the finest type of construction, and are supported by an experienced engineering department.

They look well, work well, and wear well.



Courtesy C. B. Cottrell & Sons Co., Westerly, R. I.

The leading manufacturers of the country in this particular line are using Johnson Clutches constantly. They find that the Johnson combines strength, compactness, dependability and long life.

Write Today for Catalog P.I.

THE CARLYLE JOHNSON MACHINE CO. MANCHESTER CONN

Canadian Section

Montreal, July 1, 1924.

Well Done, Canada!

It is gratifying to note the interest of British business men in the Canadian exhibits at Wembley. Dominion Envelope & Cartons, Ltd., sent over an ingeniously lighted exhibit, showing progress from forest to factory. This company recently received a letter from a prominent financial man in England, in which he says in part:

"I take this opportunity to congratulate your company upon your attractive exhibit at the British Empire Exhibition. It is one of the best in the pulp and paper section.

"The Canadian exhibit generally is the biggest and, in my opinion, the best thing of the kind ever done by Canada. It was the only building completely ready at the opening of the exhibition, and for sheer artistic beauty, general attractiveness, combined with practical utility, transcends anything else in this, the greatest exhibition the world has ever seen."

Price of Newsprint Reduced

The recent announcement of the Spanish River Pulp & Paper Mills to the effect that the price of newsprint for the final half of 1924 will be $73 per ton, a reduction of two dollars, both in Canada and in the United States, came as a surprise. Several other Canadian companies having a large newsprint output soon fell into line, and International Paper, the largest producer in the world, with mills both in Canada and in the United States, later announced a similar cut to meet the Canadian price.

No reason has yet been given out in explanation of the reduction. It is an admitted fact that the increase in the Canadian production has outstripped the increase in American consumption, and the principal Canadian companies had taken steps to meet this condition by a reduction of about ten per cent in output.

It is claimed that the new price will have a tendency, if anything, to stabilize the market. As an argument in support of this theory, it is pointed out that the $75 price has been such in superficial terms only, owing to concessions which had to be made to the consumers, and that the new price without such concessions will not materially affect profits and will improve general results materially.

It is also reported that three Canadian mills will furnish newsprint to the Hearst papers, the largest single consumer of newsprint in the world, at $70 a ton; but the conditions of these contracts have not been made public, and it is understood that the contracts have limitations.

De Vains Mill for Western Canada

At a recent session of the Alberta Legislature, Premier Greenfield announced that the Trade Commissioner's Branch had been investigating the possibilities of the manufacture of paper from waste straw of the province. The Premier stated that successful tests had been carried out with the co-operation of C. Price-Green, commissioner of industries of the Canadian National Railways, demonstrating that newsprint, building papers, straw boards, building boards, etc., could be made from the Alberta straw.

On top of this comes a press notice to the effect that arrangements have been completed between M. Dolphus, representing the de Vains interests of Great Britain, and a group of Winnipeg business men, including W. R. Allen, president of the Union Bank of Canada, for the construction of a plant for the manufacture of pulp from straw. The property on which the plant will be located is north of Selkirk, Man., and covers an area of 30 acres.

An editorial of the Pulp and Paper Magazine of Canada questions the wisdom of such a step. As it very aptly remarks, "First catch your straw, then cook it. Having cooked, how serve?" The manufacture of straw pulp involves three phases —transportation, conversion and production; and as far as America is concerned, conversion is the only one heretofore demonstrated. The editor has no doubt whatever that the other two phases can be tackled successfully, but believes that the problem is mechanical rather than chemical. It is a matter of first devising some means of baling the straw in sufficiently dense form at low cost by a portable machine while the straw is being threshed; and then of converting it into a half-stuff that will run a thousand feet a minute on machines trimming two hundred inches. "Until those points are settled, the straw paper business in Canada is a very forlorn hope."

Large Newsprint Mill for St. Boniface

The Manitoba Pulp & Paper Co. will shortly establish its plant at St. Boniface, Man. The company has a capital of $5,000,000, of which the cash outlay will be $3,600,000 in immediate operations. George Seaman, of Chicago, head of one of the widely known paper firms, is reported to be behind the J. D. McArthur enterprise, and, having satisfied himself that the necessary supply of pulpwood is in sight for a 200-ton news mill, he is keen to have the work started. Mr. Seaman was in Winnipeg recently in connection with the proposition.

The new industry will give employment, when in operation, to about 700 men. The immediate expenditure of erection and installation will take care of the bulk of the unemployment situation in Winnipeg and St. Boniface, and the winter work of getting out the pulpwood for the mill will keep several hundred men busy.

By its industrial by-law the city of St. Boniface allows the company to locate at a fixed assessment on land which has for some time been practically off the tax-paying lists of the city.

The Manitoba Pulp & Paper Co.'s mill will be a "balanced" establishment, by which is meant that it will manufacture both its sulphite and groundwood pulps on the premises.

The Seaman connection assures the McArthur Co. the most important feature requisite to the success of its enterprise. Its market is assured. The Western Canadian consumption of newsprint in the field tributary to the new mill affords a possible market of well over 50 tons a day. The balance of the production is already guaranteed a market by the Seaman connections in the United States, which at $73 a ton means an enormous income to St. Boniface and Winnipeg.

Pulpwood Dealer Loses Suit

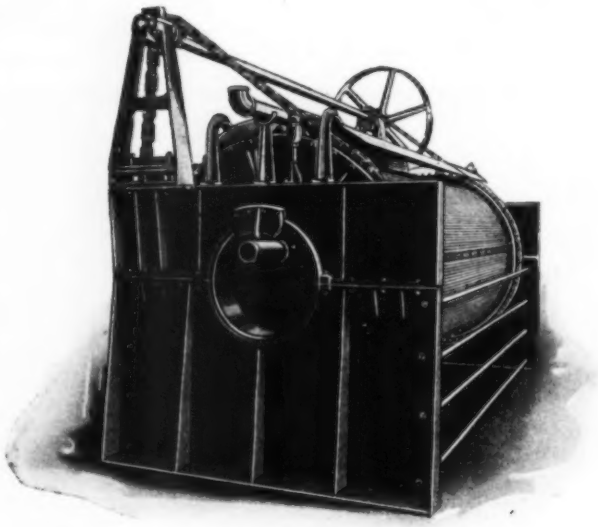
An action taken by Joseph R. Chabot et al. against the Union Bag & Paper Corporation to recover $37,500 under a contract for the purchase of pulpwood, for delivery to the defendant company at Hudson Falls, N. Y., was recently dismissed by Mr. Justice Archer of the Superior Court of Montreal.

The parties to the suit entered into a contract on May 26, 1920, whereby Chabot and others were to furnish the company with from 5,000 to 15,000 cords of pulpwood to be delivered for $27.50 a cord. A large number of clauses in the contract laid down various conditions, and among them was one stipulating that, should the defendant company grant more favorable conditions in subsequent contracts for the purchase of pulpwood, Chabot would benefit by such conditions.

In the fall of 1920 Union Bag had to buy wood under unfavorable conditions, paying $35 a cord. Chabot claimed that more favorable conditions were granted in these contracts, and that he was entitled to payment of the difference between price stipulated in his contract and in the later ones, namely, $7.50 a cord. Mr. Justice Archer dismissed the action because the defendant company did not grant more favorable conditions to other contractors at the time or about the time when the plaintiff's contract was signed. The subsequent contracts had been given under special circumstances and under abnormal conditions several months after the plaintiff's contract was signed and when the price of wood had increased considerably.

Changes in Management

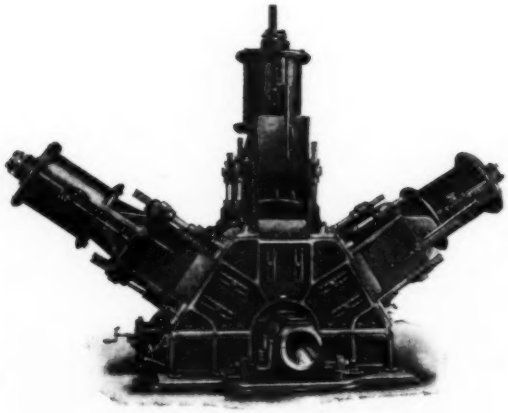
Announcement has been made by Engineering & Machine Works of Canada, Ltd., of St. Catharines, Ont., that on account of the recent passing away of two of their officers, S. W. Jenckes, president, and Col. H. R. Fraser, vice-president, it has been necessary to make new appointments to the board and management of the company. The directorate is now headed by R. K. Blair, president and general manager. Albert E. Jenckes, brother of the late president, becomes vice-presi-



BULL SCREEN

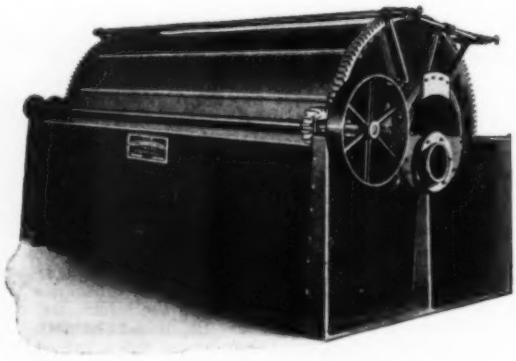
THE HYMAC BULL SCREEN is a new device. It is not a theory. It is in successful use in several Canadian mills. It is Built in Three Sizes viz.: 8′-0″—10′-0″—12′-0″. Exceptional Capacity. Low power consumption and upkeep. Absolutely clean Slivers—free of good stock, are assured by the System of Showers.

Well worthy of Investigation.



PULP GRINDER

THE HYMAC GRINDER is built in three sizes for wood 24″ 30″ and 32″ long. All parts are machined to Jigs which insures positive fit of repair parts. A heavy well Balanced machine built for hard service.



"NORTH" SAVE-ALL AND FILTER

AS A SAVE-ALL

Built in three sizes, viz. 6′—8′—10′ to handle Two, Three and Four wet machines respectively. Requires no Felt or Couch Roll.

AS A FILTER

Same sizes will handle five, seven and nine million gallons of water per day. One Canadian Installation contains ten 10′ machines. Low power consumption and low upkeep cost.

THE HYDRAULIC MACHINERY CO., LIMITED.

MONTREAL, QUE.

Canadian Section

dent, and Paul Jenckes, a son of the late president, becomes a director and will be identified with the sales department. J. E. Waterhouse, late managing director, has resigned and is no longer connected with the management of the company. Cecil Horton remains in charge of sales.

The new directorate comes to work with vigorous ideas for the improvement of the plant and organization, and a new aggressive sales policy. This will mean improvement in the products and in service to customers. Plans are under way for financial expansion and a change in name of the company, reintroducing the Jenckes name, of which announcement will be made later.

Quebec Welcomes American Capital

In the early part of June a group of American financiers from New York, Boston, Baltimore, Chicago, Philadelphia and Washington spent a few days visiting the Province of Quebec. While in the city of Quebec they were entertained at a dinner presided over by J. Aldred, president of the Shawinigan Power Co., at which were also present Lieutenant-Governor Perodeau, Premier Taschereau and many members of the Quebec Government.

In the course of his address Premier Taschereau said in part: "We have already some American capital invested in this province, but we shall be glad to get more. I invite the American interests to invest more cash in this province. The province of Quebec has legislation and economical conditions which assure entire protection to outside capital."

Laurentide to Reduce Production

For some time past the Laurentide Co. has been operating below capacity, and in view of the fact that this condition is likely to continue for some time, Mr. Sabbaton put the situation plainly before the employees at a special meeting of the Laurentide Mill Council. This was done so that no hardship might result to any and that the hours of labor might be equitably distributed.

There has recently been a very considerable increase in the production of Canadian newsprint; and as the increase in consumption has not been quite as rapid as the increase in production, there is a slight overproduction at the present time. In facing the situation the Laurentide management was confronted by several courses of action.

The entire plant might have been closed down for a few days each month, and under existing conditions this would mean a loss of approximately two and a half days' pay for each of the employees. Rather than impose such a loss to deserving employees, the management decided to reduce production by slowing down the old machines from 630 feet per minute back to 500 feet. The machine crews would thus be employed full time, and in return the company hopes to be compensated, in part at least, by the production of a better grade of paper and one that will be more salable in a competitive market.

World's Record Paper Production

Another world's record for machine output has been hung up. This time at Price Bros. & Co.'s Kenogami mill "Number Six machine in the twenty-four-hour period from 8 a. m., May 14, to 8 a. m., May 15, running at a constant speed of 770 feet per minute, with a trim of 219 inches on 32-pound basis weight newsprint, lost five minutes with four wet end breaks and made an actual production of 106.6 tons against a possible 108.3 tons, or at a rate of 98.4 per cent efficiency."

Number Six machine is a Walmsley machine with a Harland drive. Our congratulations to the builders of the machine and to the crews that handle it so efficiently.

Casein Co. Goes Out of Existence

At a meeting of the Canadian Consumers' Casein Co., which was recently held in Toronto, it was decided to apply for a winding up order and the organization will soon be a thing of the past. The company has been in existence for about ten years, with headquarters at St. Johns, Que. It was composed of the coated paper manufacturers of Canada, who maintained a grinding and shipping plant at St. Johns, under the presidency of W. C. Copping, with C. N. Ramsay as vice-president, Herbert Gage as secretary, and I. H. Weldon as treasurer.

The company was established to encourage the production of casein in Canada; but the price of casein is now so low that cheese-making is more profitable than the manufacture of casein. It is stated that the shareholders, who are all coated paper manufacturers, will not be out anything on the winding up of the company, as there are ample funds in the treasury to reimburse them for their investment.

New fire fighting equipment has been installed in the Nashwaak mill, consisting of a 1,000-horsepower steam turbine, believed to be the only engine of this type in Canada; two Buffalo fire pumps with a capacity of 1,500 gallons a minute; one centrifugal pump for the circulation condensers; a 600-horsepower compound engine generating direct current; a turbine equipped with turbine condensers of 1,500 square feet of cooling surface. All the pumps were imported from the United States, but the fittings and mounting were made locally. The equipment was installed under the direction of F. W. Brawn, mill manager, and John Green, chief engineer. A trial proved highly satisfactory.

Riordon Mill Receives Safety Flag

An enthusiastic meeting was held at Hawkesbury, Ont., when the employees of the pulp mill of the Riordon Co. were presented with the shield and flag for the best accident record of 1923 in the competition organized by the Ontario Pulp & Paper Makers' Safety Association. The Riordon Company's mill headed the contest in Class "A" with a record of 60 non-fatal accidents, involving lost time of 481 days, which is equal to 1.1 days' lost time per full-time worker.

Jens Thue, superintendent of the mill, presided, and a congratulatory speech was made by Mayor Boulanger, who hoped that a similar gathering would be held in 1925 to celebrate an even better record than that of the past years. A splendid musical program was carried out and the presentation of the shield and flag was made by A. P. Costigane, of Toronto, secretary and engineer of the Ontario Pulp & Paper Makers' Safety Association, who delivered a short address on the importance and progress of safety work. The trophies were received on behalf of the employees by Mr. Lauzon, who declared that every effort would be put forth to make Hawkesbury the resting place of the shield.

Plenty of Work for Lacey Co.

The Canadian office of James D. Lacey & Co. has started extensive field work. On his return to the New York office from Montreal and eastern Quebec, E. A. Sterling, managing director of James D. Lacey & Co. (Canada), Ltd., reported that several cruising and mapping projects are to be carried out during the early summer with their associates, the Laurentide Air Service, Ltd.

One of these is an aerial forest reconnaissance of 2,300 square miles of timberland for a large pulp and paper company in eastern Ontario. This work will include the mapping and classification of merchantable timber areas, reproduction, burns and waterways. This sketch will be the guide in planning and carrying out a more intensive forest survey with ground parties later in the season. Another aerial operation for the immediate future is on the Upper Gatineau river in Quebec. This survey will delimit the boundaries of a 1923 burn and gather information as to the progress of the present drive, and the condition of the streams, with supplemental information on the timber.

Spanish River Expect Good Year

The fiscal year of the Spanish River Pulp & Paper Mil's ended on June 30, and the earnings are expected to show up at a rate variously estimated at from 20 to 30 per cent, so that there naturally are rumors of increase in the dividend rate or of a bonus. The forthcoming statement is expected to show a working capital in the vicinity of $10,000,000, no bank loans and considerable reduction in outstanding bonds.

This fine showing is due to the fact that the company's three mills at Sault Ste. Marie, Sturgeon Falls and Espanola, Ont., have been working at full capacity, and that the whole

COMBUSTION ENGINEERING CORPORATION
POWER PLANT LIMITED EQUIPMENT
STOKERS OF ALL TYPES
PULVERIZED FUEL SYSTEMS
STEAM TURBO-GENERATORS
HIGH SPEED STEAM ENGINES
WATER TUBE BOILERS
AIR PREHEATERS
RADIAL BRICK CHIMNEYS
COAL HANDLING EQUIPMENT
ASH CONVEYORS AND HOPPERS
STEAM PIPING
SUSPENDED FLAT ARCHES
DE-AERATORS
CONDENSERS OF ALL TYPES
OIL BURNING EQUIPMENT
BOILER FEED PUMPS
PULVERIZING AND GRINDING MILLS
RECORDING INSTRUMENTS
INDUCED AND FORCED DRAFT FANS
DIESEL OIL ENGINES
ECONOMIZERS
HEAD OFFICE—TORONTO
VANCOUVER, MONTREAL, WINNIPEG

Charles Goodwin, master mechanic of the Abitibi Power & Paper Co., at Iroquois Falls, Ont., for some years, has resigned his position with that company and is now acting in a similar capacity at the Ontario Paper Co.'s mill at Thorold, Ont.

In the absence of H. E. Beedy, general manager and vice-president of the Nashwaak Pulp & Paper Co., who is now on a tour of European pulp and paper manufacturing centers, F. W. Brawn is in charge of operations.

Herbert J. Gage, of the Georgetown Coated Paper Mills, accompanied by his wife and family, has left on an extended trip to Great Britain and Europe and will be absent several months.

Ritchie & Ramsay, coated paper manufacturers of Toronto, have laid out a fine ball ground adjoining the mill in New Toronto, and a team from the plant has been entered in the baseball series of the Manufacturers' League.

Owing to the surplus supply of pulpwood at Sault Ste. Marie, the drive of the Magpie River is being stopped at High Falls. It is understood that the drive of the Michipicoten River is being hung up at the Brulé Harbor for the same reason.

John R. Gordon, manager of the McLeod Pulp & Paper Co., Ltd., Milford, N. S., was nominated recently as a candidate in Queen's County for the Nova Scotia legislature.

J. F. King, manager of the Great Lakes Paper Co., has resigned and has accepted a position with the Combined Locks Paper Co., Appleton, Wis.

Austin Hodgson, of McFarlane, Son & Hodgson, wholesale paper dealers of Montreal, has left on a trip to the old country.

The Interlake Tissue Mills, Ltd., Merritton, Ont., have completed the new asbestos roof for the paper machine room.

A provincial charter has been granted to the Hygrade Corrugated Products, Ltd., with head office in London, Ont., and an authorized capital of $70,000. The company will carry on the business of manufacturing corrugated fiber boxes and containers of all kinds, corrugated paper products, as well as cartons, boxes, bags, etc.

D. McLeod, vice-president of the Backus-Brooks Co., Kenora, Ont., was in Toronto for the fifteenth annual convention of International Rotary. He said that the new news print mill of the Backus-Brooks Co. is now in full operation and running smoothly.

J. B. Rolland, of the Rolland Paper Co., accompanied by Mrs. Rolland, arrived in Montreal on June 23rd, from Europe, where he spent the last three months visiting France, Italy and Great Britain.

Many paper supply houses closed down at noon on Saturday, June 28th, to reopen only on Wednesday, July 2nd, thus giving their employees a three day week-end holiday over Dominion Day, July 1st.

The Outstanding Fact This Month Is-----

"Imports of Manufactured Products Are Increasing"

and if this keeps up we will all have plenty of time to go fishing and if the fish don't bite, we will sure be out of luck

CAPITAL WIRES

All Meshes of Paper and Pulp Mill Wire Cloth in Brass or Phosphor Bronze

SERVICE QUALITY

CAPITAL WIRE CLOTH & MFG. CO., LTD.

OTTAWA, CANADA

Canadian Section

output has ben marketed at $75 a ton, whereas during the preceding year the price was $70 during the first six months, and then $75 for the balance of the year.

During the month of April the average daily production was 812 tons, which is far ahead of any previous month in the company's history, and nearly 65 tons above the daily rated capacity of the three mills.

Large Pulpwood Deal

The Thompson & Heyland Co., Toronto, who are large dealers in pulpwood, have recently bought the timber in Cox and Waldie townships, on the shores of Georgian Bay, consisting of 72 square miles. The growth is principally of pulpwood, 90 per cent being poplar, which is in increasing demand by the mills south of the line.

The Thompson & Heyland Co. will themselves cut 20,000 cords of poplar this season on their own holdings, and altogether have sold for the coming year some 35,000 cords of this wood. The firm have let the contract for cutting the poplar on their own limits in Waldie Township to Joseph M. Cyre, of Midland, Ont., who has about 200 men engaged in cutting and peeling the product, the peeling season extending from June till the end of August.

The company expect to handle from 60,000 to 100,000 cords of pulpwood during the next twelve months.

Important Deal in Quebec Limits

An important transaction in timber limits was recently put through, the limits known as the Mont Louis Seigneurie, owned by Pierce & Barrener, of New York, having been purchased by the George Hall Coal & Shipping Corporation, of Montreal. The purchasers were acting as intermediates in the deal for the St. Regis Pulp & Paper Co., which will exploit the limits through the Mont Louis Lumber Co., which is to be issued letters patent shortly.

The limits in question are located on the northern side of the Gaspé peninsula near the St. Lawrence and extend on some 75,000 acres of freehold. In addition the purchasing interests have acquired the rights on nearly 70 square miles. The price of the deal has not been given out, but the average price paid on freehold land has been $7 to $10 per acre, so that it can safely be placed at over $600,000.

F. L. Ratcliff Back from England

Fred L. Ratcliff, president of the Ratcliff Paper Co., Toronto, Ont., lately arrived home from an extended trip to Great Britain and the Continent. While abroad he came in contact with many paper men, especially distributors.

He says that the industry in the old country is fairly prosperous, although complaints are heard that competition from Germany is cutting to some extent into their profits. The cheaper papers made in England from rags, felts and papers, roofing stock, etc., have been affected by the soaring price caused by American and Canadian buyers going over there and paying big prices for the raw materials.

Mr. Ratcliff visited the exhibit of the Canadian Pulp and Paper Industry at the British Empire Exhibition, and says that the display is extremely attractive and a splendid advertisement of the resources of Canada in this line.

To Enter Australian Market

The group of mills making pulp and paper on the Pacific Coast is taking a keen interest in the Australian market and is watching with much concern the results of overtures to Australia on the part of Canada.

The action of the present government at London absolves the member of the Commonwealth from any commitments on Imperial preference.

It is also felt that Australians will realize that Canadian pulp and paper is a distinctly British product, even more so than paper converted in the United Kingdom.

Hopes are entertained that the visit of A. L. Dawe, manager of the Canadian Export Paper Co., who is at present in Australia on business for his company, may bring about some happy results, though Mr. Dawe's visit was not ostensibly for the purpose of discussing this question.

Welfare Work at the Nashwaak Mill

The Nashwaak Pulp & Paper Co., St. John, N. B., has been introducing some welfare features for the employees. The program includes the distribution of lunch free to all office employees. A lunch and recreation room has been fitted up in the rear of the general offices. An electric range has been installed, on which the hot foods are prepared at the expense of the company. Elsewhere a room that was occupied for many years for storage has been converted into a recreation room for workmen. Games and newspapers are provided, together with tables, benches and chairs.

The workmen who eat their midday and midnight and eventide meals at the mill can do so comfortably in the recreation room, and following the eating with chats and the playing of games and reading of newspapers until the time has expired.

New Mill for Prince George

Now that the provincial elections in British Columbia are over, it is expected that a definite and official announcement will be made by the Montreal promoters of the projected $10,000,000 pulp and paper mill which it is proposed to establish near Prince George, B. C.

It was thought that following the statement early in the year by Hon. T. D. Pattullo, Minister of Lands, upon his return to Vancouver from Montreal after interviewing Messrs. Jones and McLean, the capitalists who are the chief backers of the proposed mill, some further announcement would be forthcoming from the promoters. But the election of last month, which was then pending, is reported to have led them to decide to take no action until the fate of the present provincial government was definitely known.

Pulpwood in the Port Arthur District

The cut of pulpwood for this year in the Port Arthur district amounts to 334,613 cords, representing a value of about $3,300,000 laid down at the mills or aboard ship. It could supply a newsprint industry having a capacity of 1,000 tons a day, or 300,000 tons a year; but the actual output will be about 200 tons a day, or 60,000 tons a year, with an additional 30,000 tons of pulp, the balance of the wood being exported in the raw state chiefly to the pulp and paper mills south of the line.

If the whole cut were converted into pulp at that point it would represent a cash value of $9,000,000, or if it were made into the cheapest grade of paper, newsprint, it would bring $22,500,000 to that locality.

Kinleith Mill Shut Down

The Kinleith Paper Mills at St. Catharines, which were recenlty taken over by the Howard Smith Paper Mills, Ltd., of Montreal, are now closed down, W. A. Anderson, the superintendent, having been transferred to the Crabtree Division. The manufacture of book, bond and other lines of flat papers had been carried on at the Kinleith mill under the handicap of high costs, owing to the absence of a suitable railway siding and unfavorable construction features.

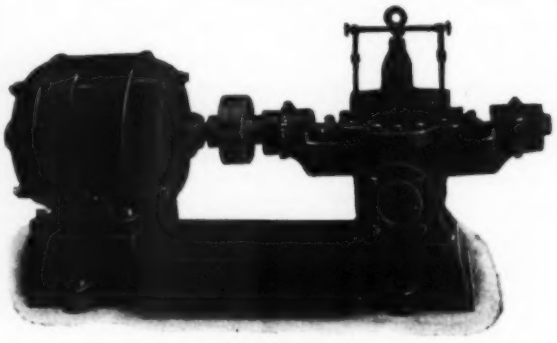
The interests behind the Kinleith Mills are closely connected with W. J. Gage Co., Ltd., Toronto, and they decided some time ago to dispose of the plant. H. F. E. Kent, of the W. J. Gage Co., was president of the Kinleith Paper Mills, Ltd.

The second shipment of machinery for the account of Price Bros. & Co., at Kenogami, to arrive at Quebec from the other side has been discharged from the "Manchester Division." The machinery was loaded on flat cars and has been forwarded to Jonquières. In addition to this the "Manchester Division" brought out a large quantity of fine goods consigned to points in Ontario and the West.

Builder of First Siamese Paper Mill Back

J. L. McNicol, former assistant paper comptroller for Canada, has returned to Toronto after an absence of over two years in Bangkok, Siam, where he built a paper mill for the Siamese government and initiated native help into the mysteries of modern paper manufacturing.

The mill, which has a capacity of two and a half tons of paper a day, uses as its chief raw materials waste paper,



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Power Pumps	**Centrifugal Pumps**
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Wherever there are pulp and paper mills in Canada, there the name of Smart-Turner has come to mean reliability and freedom from mechanical difficulty.

Continuity of service and long pump-life is the proud performance of our products. We are represented throughout Canada where we can render the best merchandising service to all pulp and paper mills. Expert, experienced pump men at your call.

Truest economy comes from specifying and insisting upon Smart-Turner equipment.

SMART-TURNER MACHINE CO., Limited
HAMILTON, ONTARIO

Representatives: Vancouver, Calgary, Edmonton, Winnipeg, Toronto, Ottawa, Montreal, St. John, and Halifax (Canada)

Lalang grass, and a considerable amount of rag stock. The mill turns out a very wide variety of grades, including wrappings, bonds, writings, blottings, manilas, etc., all of which is used by the army and navy and the prison and educational press under the control of the Siamese Government.

Fire Begins Taking Its Annual Toll

Unsettled weather and the almost daily rains during May restricted the number of forest fires in New Brunswick. During that month twenty-four fires were reported, which burned over 900 acres of private lands and 150 acres of Crown lands, the damage being comparatively slight and amounting to over $3,000 in the case of privately-owned lands.

Quebec has got a flying start in forest protection and fire prevention this year. On June 20, Henri Kieffer, chief of the Forest Protection Service of the Provincial Government, stated that since the start of the season some thirty-five small fires have been reported to the service. None of these blazes were serious, and not a single one covered more than one acre of land, all of them being nipped in the bud, while little damage had been done. The permit system, which worked satisfactorily last year, is again in force this year, up to November 15.

In Ontario fire swept a mile of timber ten miles northeast of Searchmont. Fires started in Northern Ontario, but they were quenched by heavy downpours of rain which drenched the north country. Between sixty and seventy rangers are patrolling the territory between Sault Ste. Marie and Oba, on the Algoma Central Railway and in the Blind River District. The air patrol of the Ontario Forest Branch has started in northern and northwestern Ontario. A few small fires in South Lorrain, in the North Bay District, were soon put out.

A very serious fire of unknown origin broke out a few days ago in a clearing on the J. R. Booth timber limits, near Lake Shirley, in the Township of Preston, Ont., and found ready fuel in the accumulation of brush. It has licked up in its course about forty-seven thousand pulpwood logs piled ready for shipment, belonging to the company, and has cleaned out Dubois and Victoria camps. It reached the virgin standing timber and gained headway in spite of the efforts of government fire rangers and a force of three hundred men sent out by the Booth Co. The limit covers about four hundred square miles and joins one of the finest timber areas remaining in Ontario. At the time of writing the fire is completely out of control and nothing but timely rain can save this valuable stand. In spite of his 97 years Mr. J. R. Booth is on the scene to watch operations.

A fire said to be the worst in twenty-five years has destroyed millions of dollars' worth of timber in Northern Alberta. The whole country was on fire from Fort McMurray to a hundred miles north and from fifty to seventy-five miles east and west. The old transport headquarters of the Hudson Bay Co., at Cache Twenty-three, between Waterways and Fort McMurray, has been completely destroyed, and people who went to investigate the conflagration could not get to the shore owing to the intense heat of the fire.

Ontario Power Commission Report

A revenue of $15,742,831, a surplus of $345,588 and an increase in power distributed of from 565,944 horsepower to 685,468 horsepower are reported in the annual statement issued by the Ontario Hydro-Electric Power Commission. The year is regarded by the commission as one of unprecedentedly successful operations. The report gives $241,853,201 as the capital which the province now has invested in the hydro undertaking, and at the same time gives warning that further expansion is urgently necessary. Stress is laid on the fact that many of the systems are at present sold up to their generating capacity.

The third unit of the power development undertaken by the commission at Cameron Falls is now in operation, bringing the output to 36,000 horsepower, all of which has been contracted for. Fort William is facing a serious shortage of power to operate its industries, and the industries located in that town are finding it difficult to operate at capacity on account of insufficient power. It is admitted that something will have to be done to secure more power before mid-summer. Cameron Falls, which is developing power for Port Arthur, and also for the Great Lakes Paper Co., in Fort William, is practically delivering its full load. The fourth unit is to be ready by August, and the fifth and sixth units by the middle of 1925.

There is enough load in sight at the present time in the

Canadian Section

Thunder Bay district to require the full capacity of the six units, 75,000 horsepower, within a year after the installation is completed. A considerable proportion of the power is being absorbed by the several large paper mills recently constructed in that district.

Large Addition to Wire Plant

The Niagara Wire Weaving Co., Ltd., Niagara Falls, Ont., manufacturers of wire cloth for pulp and paper making, have practically completed an addition to their plant, consisting of a two-story unit, 240 by 50 feet, which will house additional large looms, bringing the total up to forty. It will be put in operation as quickly as the looms can be installed.

The Niagara company is affiliated with the Lindsay Wire Weaving Co., of Cleveland, Ohio, and was organized in 1919 by Hamilton Lindsay at the request of officials of Canadian paper mills who wished to secure Canadian-made Fourdrinier wires and other wire cloth of dependable quality.

Spanish River Slowing Down

Contraction of output went into effect at the Espanola plant of the Spanish River Pulp & Paper Mills at the middle of June, and the mill is now operating only five days a week. Similar reduction in output is being put into effect by some other large newsprint producers, as capacity production is admitted in the best informed circles to be considerably in excess of present demand.

The existing outlook is that this curtailment of production will be in effect for some time to come, unless a price-cutting war intervenes, which is considered unlikely.

Scotch Paper Merchant Visiting Canada

Thomas D. Hunter, managing director of Tullis, Hunter Co., Ltd., paper merchants, 7 George street, Edinburgh, has arrived in Canada for the world's Rotary Convention in Toronto as a delegate from the Edinburgh Rotary Club. At the same time he is also visiting the paper trade in Montreal and in Toronto.

During 1921-22 he was deputy chairman of the Chamber of Commerce and Manufacturers of the Scottish capital.

Mr. Hunter is traveling to India, Australia, New Zealand and China.

Thunder Bay Co. Building Extension

The Thunder Bay Paper Co., located near the mouth of the Current River in Port Arthur, Ont., commenced work at the beginning of June on the new addition to the mill, and gangs of men are now at work preparing the ground and putting in the foundations.

It is expected that the changes will be completed by August and that the capacity of the mill will be incresed 65 to 120 tons per day. The staff will be increased from 110 to 160 employees, and the power consumption will be raised from 1,000 horsepower to 6,500 horsepower.

Pulpwood Baler at Great Lakes

The first pulpwood baling machine to be used at the head of the Great Lakes has been assembled at the Booth Dock in Port Arthur, Ont., and will be employed by the Canada Forwarding Co., Ltd., in shipments of pulpwood from Thunder Bay to American points.

The baler takes half a cord of wood at one operation. When baled the wood is ready to be stowed away in a ship's hold like any other freight. The utility of the machine resides in the time saved for it can go on baling the wood whether the ship is loading or not.

Great Lakes Co. Start Up Mill

The one-hundred-and-eighty-ton groundwood mill of the Great Lakes Paper Co., at Fort William, Ont., started operations towards the middle of last month. The plant is considered one of the best equipped on the continent and will eventually employ about two hundred and fifty hands. There are about fifteen thousand cords of pulpwood ready, and arrangements have been completed for a steady supply.

Work on the new one-hundred-ton paper mill will begin soon, probably this fall, on a site adjoining the pulp mill.

Alberta's Pulpwood Resources

Alberta has enough pulpwood to supply the eastern portion of the United States with newsprint paper for fifty years to come, according to a report compiled by C. H. Morse, chief ranger for the province.

"Pulpwood resources in the province," said Mr. Morse, "total 247,800,000 cords. There are 53,900 square miles of pulpwood forests. Pine composes about 45 per cent of this growth, spruce 20 per cent, poplar 25 per cent and other coniferous varieties 10 per cent."

Good Progress at Sheet Harbor

Much progress has been made with the construction of the foundation of the pulp mill being erected at Sheet Harbor by the Albany Perforated Wrapping Paper Co., of Albany, N. Y. The foundation is of reinforced concrete and the superstructure will be brick.

Work on the superstructure is expected to start in August. Representatives of the company have been supervising the work of construction, as well as the woodland operations of the company in the vicinity of Sheet Harbor.

Hollingsworth & Whitney Delay Construction

The high cost of labor and materials are causing a delay in the pulp and paper mills project in St. Stephen, N. B., of Hollingsworth & Whitney, who were to have started construction of the mills this year. Owing to the high costs of construction it has been decided to defer the start indefinitely.

The properties comprising the site, storage dams, etc., have been purchased by the company's agents.

The Laurentide Co., of Grand Mère, P. Q., are allowing six days' vacation with pay during the present year to all their employees working by the hour who were in their employ for at least five years prior to January. The vacation must be taken continuously, subject to a mutual arrangement between the superintendent and the men. Holiday pay may be drawn in advance, an hour workman receiving 43 hours' pay and a day worker 54 hours' pay at the rate current at the time when the vacation is taken.

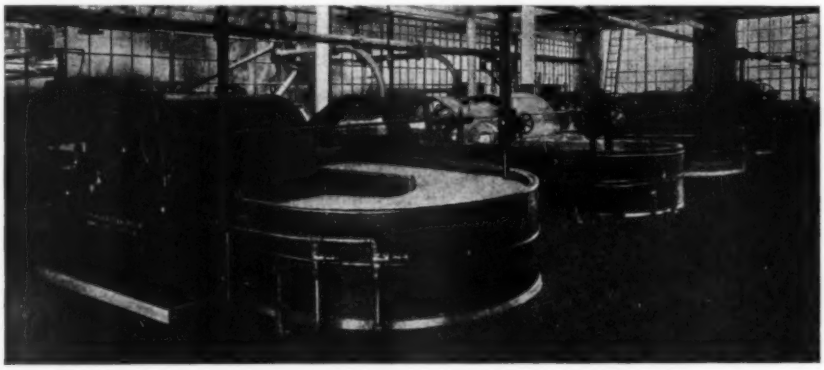
President E. W. Beatty, of the Canadin Pacific Railway, accompanied by other officials of the road, paid an official visit to Sault Ste. Marie, Ont., early in June. The party were received by a delgation which included Major P. B. Wilson, vice-president of the Spanish River Pulp & Paper Mills; Col. C. H. L. Jones, manager of the woods operations of the same company; C. R. Gray, a director of the company, and other prominent citizens of the Soo.

On petition of J. H. Walker & Co., the Lennox Paper Mills, Camden East, Ont., were put into liquidation by the bankruptcy court at Montreal, when Gordon W. Scott was appointed temporary custodian. The company making the request produced an account for $1,092 and alleged that the mill was not able to meet its liability. The amount is unsecured. The concern did not oppose the bankruptcy proceedings.

The property, assets and equipment of the Glengarry Pulp & Paper Co., Cornwall, Ont., were advertised for sale by the court, in the matter of the winding-up act, and tenders were received until June 23. The real estate and buildings are valued at $30,000, the pulp machinery and power plant at $106,000, and the materials and supplies on hand at $9,000. The plant has four grinders and five wet machines, with a capacity of about forty tons of ground wood a day.

The Beaver Wood Fiber Co., Ltd., of Thorold, Ont., has been effecting a number of changes of late. George Robertson, who has been the superintendent for a number of years, has resigned his position and has been replaced by Mr. Covey, who has been fulfilling the duties of assistant superintendent. Lloyd Bradley, of the office staff, will be the manager of the company.

It is announced that a new forestry school building will be erected by the University of Toronto on the college grounds



AN INVESTMENT in our beater room equipment means better beaters and Jordans. Our machinery embraces the most approved and advanced designs, together with heavier construction and the most careful workmanship.

The Noble & Wood Machine Co., Hoosick Falls, N.Y.

Canadian Builders: Port Arthur Shipbuilding Co., Ltd.

PORT ARTHUR, ONTARIO

and that construction will start this season. The edifice will be the last word in equipment and facilities, and Dr. Howe, dean of the faculty of forestry, reports that the prospects for an enlarged attendance are bright.

Pulpwood Commission's Report Not in Sight

Various rumors are prevalent regarding the nature of the findings the Royal Commission on Pulpwood will make in their report to the Dominion Parliament. One report is to the effect that, owing to the widely different character of conditions in the various provinces, the commission will make a specific recommendation in regard to each section of Canada rather than lay down one general regulation for the whole country.

Another allegation is to the effect that no export embargo will be recommended for many years, but in the meantime it will be urged that an export duty be placed on all shipments of pulp. It is said that the commission believes that the greatest losses in the forests are created by fire, insects and other evils. It is stated that of greater value to the country than any reference to an embargo will be the recommendations of the commission relating to forest preservation.

When interviewed at the beginning of June, Joseph Picard, chairman of the commission, stated: "We are doing our best to complete the report for the end of the present month, but I am not sure whether we shall succeed, as every day we find additional work in compiling the evidence collected. It was our expectation at first to submit our findings at the end of last month, but though we have been studying the evidence for several weeks without interruption, except on Sundays, we have been unable to do so. We are doing all we can to get our report for the end of the present month, but it is a very heavy task and it is difficult to state definitely whether we shall succeed."

In the meantime the month has rolled by without bringing the much awaited report, and the chances are extremely slim that it will be laid before Parliament at the present session. There may be an excellent reason for this delay, for it is stated that the present administration is not anxious to have the question of an export embargo, or otherwise, projected into the political arena just now, for there have been plenty of debatable and time consuming matters, in the shape of tariff and other contentious subjects, to worry the legislators. Moreover, the hot weather has come and all the members are anxious to return home as soon as possible.

It is also reported that the secretary has pretty well drafted his report, but the members of the commission have much yet to take into deliberation before making final recommendations in detail to the Government. While the activities of the commission are not likely to be prolonged to any great extent, still the report is not likely to be submitted for some months to come.

Application of Workmen's Compensation Act

The Royal Commission, which for many months studied the working of the Province of Quebec Workmen's Compensation Act, held its final sessions on June 23, sitting at Chicoutimi in the morning, and at Kenogami, a few miles distant, in the afternoon. These sessions were mainly concerned with the conditions at the great pulp and paper industries at these two places, which are the main centers for the industry in the upper Saguenay and lower Lake St. John regions. Evidence was taken on behalf of the various companies interested, and also from the representatives of the organized employees.

The commission, which is composed of Mr. Justice Roy, Quebec, as chairman, with Messrs. J. A. Bothwell, general manager of the Brompton Pulp & Paper Co., and G. Brousseau, Quebec, for the employers, and Pierre Beaule, Quebec, and Gustave Francq, Montreal, for the employees, left Quebec by boat on the 22d of June, accompanied by R. W. Gould, secretary of the Quebec Division of the Canadian Manufacturers' Association, and George Montgomery, K. C., who has acted as counsel for the C. M. A. throughout the sessions of the commission, and also by various representatives of the Quebec pulp and paper industries.

Both parties have been strongly organized during the enquiry, the employers being represented by the C. M. A. and other employing associations, while the workmen have been represented chiefly through the various unions. The latter have demanded many changes in the act, while the general position of the employers has been that it needs very little alteration.

Some time in the early autumn a final meeting of the Royal Commission wil be held at Quebec, when counsel for both em-

ployers and employees will be given an opportunity to sum up the voluminous evidence taken by the commission and present their arguments. These sessions will conclude the public work of the commission, which will then prepare its report, to be presented to the Provincial Government in time to be dealt with at the next session of the legislature.

Among the paper men from Toronto who have recently sailed for England to visit the British Empire Exhibition at Wembley are George Bridgens, of Bridgens, Ltd.; I. D. Bradshaw, of Bradshaw, Ltd., wax paper manufacturers; Christie T. Clark, of the Clark, Rolf, Stone Co., Ltd., lithographers, etc.; and Charles G. Ellis, of the Barber-Ellis Co., Ltd., envelope manufacturers, etc.

The many friends in the Toronto paper trade of George C. Winlow, sales manager of the Lincoln Paper Mills Co., Ltd., were pleased to greet him on his return to Toronto at the beginning of June. Mr. Winlow is very much improved in health, having practically recovered from injuries received in a railway wreck at Belleville, and he is pretty much his old genial self again.

The Great Lakes Paper Co., Ltd., with headquarters at Fort William, Ont., has opened an office at 314 Dominion Bank Bldg., Toronto, Ont., with J. H. Black, president of the company, in charge. Mr. Black will devote most of his time to the affairs of the Great Lakes Paper Co., he having been relieved of some of his duties in connection with the Excelsior Life and Northern Canada Power, Ltd., in Toronto.

Charles Walker, of the Walker Press, Paris, Ont., was in Detroit at the beginning of last month, arranging for delivery of special machinery he has had made preparatory to the launching into the manufacture of paper milk-bottle tops. The machines he will install will cut, paraffin and pack in tubes the tops ready for the automatic bottling machine.

William Gorman, who for some years has been the Montreal representative of the Provincial Paper Mills Co., Ltd., with head office in Toronto, has severed his connection with that company and has been succeeded by Arthur Jewitt, who went to Montreal from the head office a year ago. Mr. Gorman will go into business for himself.

C. N. Ramsay, who is widely known in Canadian paper circles through his connection with Ritchie & Ramsay, coated paper manufacturers, Toronto, Ont., has returned to Toronto after several months spent at Santa Monica and other Southern California resorts. Mr. Ramsay was accompanied by Mrs. Ramsay and their daughter.

The Keewatin Lumber Co., Ltd., Kenora, Ont., state that their newsprint mill, on which the company spent about four million dollars, is running steadily and is turning out approximately 75 tons a day. Additional power development at the Norman Dam is contemplated.

The Bathurst Co., Ltd., of Bathurst, N. B., is curtailing its pulp making operations, owing to the unattractive market; but this does not affect the paper mill of the company, which has a capacity of 60 tons of newsprint a day. The pulp mill has a capacity of 50 tons of Kraft and sulphite a day.

W. H. Sherriff, of the Hodge-Sherriff Paper Co., Ltd., Toronto, sailed on June 6 from Montreal on the SS. Montcalm for England and will spend some weeks there and on the Continent on business connected with the Wayagamack Kraft paper, of which his firm is the selling agent.

During the early part of June the "Spur" on Long Wharf at Digby, N. S., was the scene of considerable activity, two pulp steamers having arrived and loaded with pulp for Great Britain.

William Zieman, formerly of the Abitibi Power & Paper Co., at Iroquois Falls, Ont., and now of the Fort William Paper Co., at Fort William, Ont., has returned to that town after spending part of the winter in California.

The Seiden Papier Fabrik Eislingen, Wurtemberg, Germany, is trying to place some lightweight paper on the Canadian market, and Dr. H. C. Fleisher has called on the Toronto trade soliciting business for his firm.

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March 24, 1924

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The results we are now obtaining on the Regulator which you recently installed on our No. 1 Paper machine are such that we wish to accomplish the installation of these Regulators on the balance of our machines as quickly as possible.

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Yours very truly,

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2—W. B. Oglesby Paper Co.
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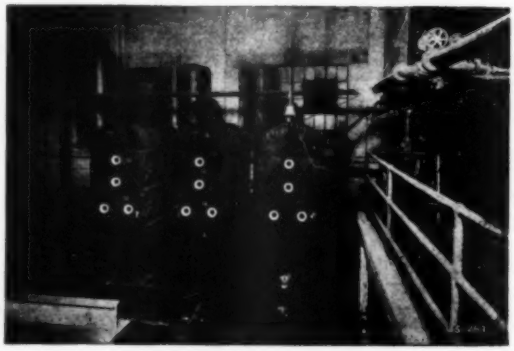

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Howard Smith Cut Common Dividend

The common stock dividend of the Howard Smith Paper Mills, Ltd., has just been reduced from 6 per cent to 4 per cent. C. Howard Smith, president of the company, has issued an explanatory letter to shareholders in connection with the action of the board, pointing out that it was taken to conserve profits in view of the uncertainty of business conditions and the necessity for maintaining a larger amount of working capital than hitherto.

The working capital position of the company has improved from $921,806 at the end of December last to $1,294,642 at the end of May. This figure is well in excess of that stipulated in the bond issue made some months ago.

The benefits derived from this new financing are already apparent, Mr. Smith points out, stating that net earnings for the first five months of the current fiscal year, after allowing for adequate depreciation, would have been sufficient to continue the 6 per cent dividend payment, in fact that earnings are ahead of the same period of last year, the total available after bond interest being $196,239, as compared with $185,745 for the first five months of 1923.

The dividend cut will mean a saving of $75,000 per year.

In his letter to shareholders, explaining the reasons for the cut in dividend, C. Howard Smith, president of the Howard Smith Paper Mills, Ltd., outlined the present position of the company, showing that operations are quite satisfactory:

"The company's mills are presently operating under advantageous conditions. The construction work which has been under way for more than a year at Cornwall is approaching completion. Already these improvements are being reflected in the earnings of the company.

"The Cornwall and Crabtree mills are operating at capacity. The Beauharnois mill making the higher grades of paper is operating about 80 per cent of capacity.

"The directors have recognized that there is a market depression in business, both in Canada and the United States which has continued for several months. While in every respect the manufacturing costs of the company, improved as they have been by the introduction of new classes of paper and the reduction through additions to plant, are such as to allow us to meet all competition and normal fluctuations in price, yet as business conditions for the remainder of the year are still uncertain the directors require further assurance of the maintenance of the company's volume of business.

"If business continues during the remainder of the year without abnormal recession below the present volume, the directors are of the opinion that this reduction will be quite sufficient to meet all the company's requirements."

Another New Mill in Nova Scotia

That a start will be made in the construction of a pulp mill at Liscomb Harbor is the present indication. Since the talk of the embargo started efforts have been made in a quiet way to promote the building of a mill at this site. For the past few months C. W. Anderson, a pulpwood dealer and a member of the Nova Scotia House of Assembly, has been forming a company to build the Liscomb Harbor mill, and has interested United States capital in the project. It is expected that the United States interests will wield the controlling influence in the company.

Liscomb Harbor is considered the most suitable location of those looked over by the promoters, one of the advantages being that shipping of the pulp can be carried out the year round, as the harbor is free from ice in the winter.

The mill will likely be operated by hydro-electric power, though no definite arrangements have thus far been made. The promoters hope to have the mill producing pulp early next year, provided they can start construction at once. It is planned to start with a capacity of 30 tons a day. Wharves will also be built as it is the intention to ship all the pulp by water, probably to the United Sates to be disposed of on the open market.

Canadian Paper Box Manufacturers Meet

The ninth annual convention of the Canadian Paper Box Manufacturers' Association, Incorporated, was held at the Chateau Laurier, Ottawa, on the 23rd and 24th of June, with some eighty delegates in attendance. The delegates were officially welcomed to the city by Mayor Napoléon Champagne. At the annual dinner Hon. Chas. Stewart, Minister of the Interior, stated that Canadian industry was on the start of an era of prosperity.

J. B. Lawrason, of Toronto, presided at the business sessions, and among those to speak or read papers were: Rev. George Kilpatrick, Ottawa; John J. Small, of the Guelph Paper Box Co., Ltd., Guelph, Ont.; James A. Northey, of the Telfer Paper Box Co., Ltd., Toronto; C. N. Moisan, Standard Paper Box Co., Ltd., Montreal; Charles R. Conquergood, Canada Printing Ink Co., Ltd., Toronto; J. L. Constantineau, of the King Paper Box Co., Montreal; J. Grove Smith, Dominion Fire Commissioner, Ottawa; R. S. Dunlop, Dominion Paper Box Co., Ltd., Toronto; and J. B. Lawrason, president of the association.

In addition to the business session there was a trip through the Parliament Buildings, a drive about the city, a visit to the Booth paper mills, and an entertainment and dance at the Homestead Inn, Hull, P. Q.

Grand Discharge Plans

If plans are carried out as expected, the damming of the Grand Discharge at St. Joseph d'Alma, which is to mean a development of power reaching over 800,000 horsepower, will be finished on the first of December, 1925, on which date the arrangements are already being made for a demonstration marking the completion of this the most important water development in America. The Quebec Development Co. has now several thousand men engaged at the work, and expert engineers who are directing the work and receiving machines which are being used for the execution of the work.

Nearly $30,000,000 will have been invested in the enterprise by James B. Duke, the tobacco king, Sir William Price, one of the most prominent Canadian pulp and paper manufacturer, and their associates, before the power will be available. The development will give a still further impetus to the already considerable pulp and paper industry of the Lake St. John and Saguenay districts, to which it will furnish power and at the same time ensure a sufficient flow of water throughout the entire year to prevent seasonal shutdowns during part of the year.

Pulpwood Association Essentially Canadian

The report has been circulated by those advocating the imposition of an embargo on pulpwood that the recently organized Canadian Pulpwood Association is controlled in the United States. This is denied by R. P. Bell, vice-president of the association, who in a letter to the press says, "The Canadian Pulpwood Association is entirely Canadian in origin, policy, membership, control and management. Angus McLean, president of the Bathurst Co., Ltd., pulp and paper manufacturers, is president; James Thompson, of Toronto, Armand G. Auger, of Quebec, and Ralph P. Bell, of Halifax, are the vice-presidents.

"It is frankly opposed to the principle of an embargo on the export of pulpwood, on the grounds that such restrictive legislation will act as a boomerang to the Canadian producer, and it believed that Mr. Barnjum's ingenious campaign, once properly exposed to the scrutiny of any jury of Canadian editors, would close the columns of responsible papers to his further propaganda."

Power Export from Canada

The pulp and paper industry in many parts of the eastern states is keenly interested in the prospects of getting power from Canada. During the last year the exports of power to the United States increased 30 per cent, which may incline some to think that the chances for a steady increase in these exports are very good. But this should not be relied upon too strongly, for there are two powerful factions interested in the matter of exporting power from Canada.

One holds that Canada has a super-abundance of water power which might as well be developed, it being useless in the unharnessed state. It is also contended that Canada, even though her industrial use of hydro-electric power is increasing rapidly, cannot expect to use at home nearly all the power that may be produced. Hence, it is argued, a market should be found in the United States.

On the other hand, it is held that instead of sending the power to the industries across the line, the industries should come to the power on this side.

Eddy to Make Considerable Improvements

An extensive program of major improvements and extensions to present plant, and the installation of new plant, has been approved by the E. B. Eddy Co., Ltd., of Hull, P. Q. The program now under way includes a complete remodelling of their existing sulphite mill with additional digesters; a new news print mill; the extension of the railroad siding to

"I Think It Is One of the Finest and Quickest Tools"—

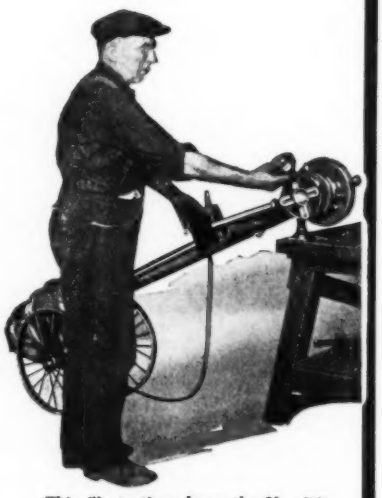
This is what one enthusiastic owner thinks of his "Toledo" No. 100 tool and Power Drive equipment for threading 1" to 2" pipe. He further says "I would not be without it for many times its cost."

This praise for "Toledo" equipment is universal among "Toledo" owners.

"Toledo" Pipe Threaders and Cutters

are without doubt the most desirable pipe tools for use around the paper mill. They are portable, may be easily put on the pipe anywhere and operated. They work so easily a boy can cut the threads. When connected to the "Toledo" Power Drive they make the most rapid and efficient power equipment at a fraction of the cost of power machines.

The "Toledo" line comprises tools that will just meet your requirements, and a postcard will bring you our complete catalog.



This illustration shows the No. 100 Tool driven by the "Toledo" Power Drive Threading 2-inch pipe in 20 seconds.

THE TOLEDO PIPE THREADING MACHINE CO., TOLEDO, OHIO

New York Office, 50 Church St.

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"HALLOWELL" Steel Truck Platform

Pats. Pending

For ruggedness, strength, serviceability and long life specify the "HALLOWELL." Made in all sizes and for all kinds of service.

Other lines of our manufacture used in plants of the paper industry, also as parts of machinery for this trade, are:

"Pioneer" Steel Shaft Hangers

"Hallowell" Steel Bench Legs

"Ha'lowell" Steel Shaft Collars

"Standco" Socket Head Cap Screws

"Standco" Hollowset Screws

Standard Pressed Steel Co., Jenkintown, Pa.

the lower mill site, and a barking plant and general improvements to the existing groundwood mill.

The E. B. Eddy Co., Ltd., is one of the oldest companies in the pulp and paper industry, having been established in 1851, and the improvements now under way will place their paper producing plant upon a most modern and efficient basis. Mr. G. H. Millen is president, and Mr. J. T. Shirreff is vice-president.

Anglin-Norcross, Limited, of Canada, are the general contractors, and the engineering and designing are being carried out by H. S. Taylor, consulting engineer, of Montreal, Quebec.

To Resume Newsprint Shipments to Australia

It is impossible to say whether or not Australia will grant a substantial trade preference to Canada that will include news print. The action of the Labor Government in Great Britain in cancelling the McKenna preferential duties has made Australia much readier to talk business, and this makes Canadian paper men more hopeful.

A. L. Dawe, of the Canadian Export Paper Co., is at present in Australia, where he is understood to be endeavoring to secure contracts for Laurentide and other leading mills. Laurentide, in common with several mills in British Columbia, used to sell quite a large quantity of news print in Australia; but failure to accord to Canada the preference granted to the British product forced them to abandon that market. If the Canadian mills could get a preference of $15 a ton on news print they would immediately resume large scale shipments to the commonwealth.

Paper School Makes Trip

Paul-Emile Piché, Director of the School of Paper Making at Three-Rivers, P. Q., accompanied by the staff and seven of the first year students, paid a visit recently to the Technical School at Grand'Mère. Reverend Brother Charles, Director of the Sacred Heart Academy, and Mr. Patrice Thériault, instructor at the Technical School, showed the visitors through the school. The progress registered by the students and the perfection of the equipment won the admiration of the visitors.

In the forenoon the visitors, in company of Harry E. Bates, employment supervisor of the Laurentide Co., Ltd., visited the mill and the power house. In the paper mill they admired the way in which the principles of paper making were applied. Lunch at the Laurentide Company's cafeteria completed the visit.

News Print Output Still Increasing

The fact that Laurentide, Spanish River, and other large news print producers are curtailing production does not mean that there will unnecessarily be a falling in the total Canadian output. The April output was 115,572 tons, against 112,538 tons in March, while in May the production reached 117,833 tons. There has been a very considerable expansion in the Canadian news print industry, ten new machines with a combined output of 800 tons a day having been installed during 1923; and this development has by no means come to a halt.

The consumption of news print has also increased, but not quite so rapidly, so that the productive capacity is in excess of the demand for the time being. Rather than glut the market, which would have disastrous results, producers have decided to mark time until the demand has caught up with the output.

Riordon-International Deal Rumored

At the time of writing gossip in local pulp and paper circles has it that the International Paper-Riordon deal is practically closed, save for the legal formalities. Ever since the appointment of A. R. Graustein, prominent in representing the Riordon first mortgage bond holders for several years, to the presidency of International Paper, it was thought that absorption by this organization would prove the final solution of the Riordon situation.

The announcement of $10,000,000 new financing by international fits into the picture, and it would not be surprising to see a new International news print mill at Hawkesbury or Kipawa, in addition to the other extensions of the big United States company in this country. Developments in the Riordon situation are expected to transpire shortly.

Sir Henry Thornton, president of the Canadian National Railways, told the Special House Committee on National Railways and Shipping of a new industry for the West. French interests controlling the de Vains process for the production of paper pulp from straw have practically completed arrangements for construction of a mill in Manitoba. They had gone to the Canadian National Railways and asked what the railway was prepared to do in the matter of rates. It is a new business and a new movement, and a new rate has to be made for it. As it is an infant industry, and would prove beneficial to western farmers by utilizing waste straw, the railway feels justified in making quite a low rate.

Denies Budget Condemnation Report

Angus McLean, president and manager of the Bathurst Co., pulp and paper manufacturers of Bathurst, N. B., announces that, contrary to the report published concerning the deliberations of a meeting of eastern members of the Canadian Manufacturers' Association at Moncton, N. B., the resolution censuring the government was opposed. This resolution protested against the tariff proposal of the King administration. Mr. McLean states he voted against the resolution and he was supported by others in attendance.

Mr. McLean is a past president of the Canadian Manufacturers' Association. He believes the action of the convention was an indiscreet move, hence his opposition. This is characteristic of this pulp and paper company executive, who never straddles a fence on any question.

Importance of Forest Products

Among the nine main groups of commodities, the exports from Canada to the United States of wood and paper plays by far the most important part in the trade between the two countries. Export of the group in question amount to more than four times the total value of any other, and are more than double the value of any main group imports.

Canadian exports to the United States for the twelve months ended April, 1924, show an increase of something more than 48 million dollars over the corresponding 1922-23 period, and an example of the rapid growth of the demands of the United States upon our forest resources is furnished by the fact that of this 48-million increase 31-million comes from wood and paper exports.

Reforestation by Abitibi

This year the Abitibi Power & Paper Co. followed the replanting program initiated last year, and seedlings were planted in the vicinity of Camp 16 and the river bank opposite the big newsprint mill at Iroquois Falls, Ont. In this district 123,500 trees three and four years old have been set out, the planting being completed during the first week of June.

The trees are grown at the nurseries of the Abitibi Power & Paper Co. at Twin Falls. The species planted are: white spruce, 20,000 four years old; Norway spruce, 55,000 four years old; jack pine, 31,900 three years old; Scotch pine, 16,600 three years old.

New Pulpwood Association Incorporated

With the object of maintaining friendly relations between pulpwood dealers and protecting their rights, incorporation is announced of D. H. Pennington, J. Oscar Auger and Arman G. Auger, of Quebec, under the name of the Quebec Pulpwood Dealers' Association, with a capital of $20,000.

Other purposes of the new association include safeguarding the interests of all those interested in pulpwood operations, manufacturing, sale or distribution, to protect its members against any methods not in accordance with trade regulations and to keep its members posted on any important information concerning the business.

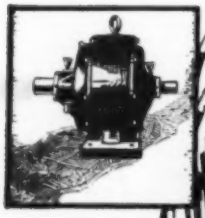
Mattagami Bondholders Approached

Certain holders of the 7 per cent convertible sinking fund first mortgage debentures of the Mattagami Pulp and Paper Co., Ltd., have received from a trust company a tentative offer to purchase their holdings at 25 per cent of par. This leads some to the conclusion that new interests are trying to get control through the debentures, this step leading to full reorganization.

It is thought that such reorganization might call for a capitalization of approximately $4,000,000. The company went into the hands of the receiver in 1921.

A definite charge was made some time ago that Canadian paper makers were selling their product cheaper for export

Standard Sizes of GANSCHOW Speed Transformers shipped from stock



Increased facilities and refined processes enable us to announce that we can now ship Ganschow Speed Transformers of Standard sizes and and ratios *from stock.*

We also have a complete stock of parts—ready for assembly—for sizes and ratios less commonly used, and can make prompt shipment for almost every requirement.

Let us have your next inquiry. Get Ganschow Quality and Design on a real service basis.

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MEMBER OF AGMA

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GANSCHOW

than for the Canadian market. This immediately brought a reply from the Howard Smith Paper Mills, giving their Canadian and export prices for three classes of paper. Unfinished hanging paper is sold for export at 4.75 cents a pound, and for Canadian delivery at 4.35 cents; standard half-tone paper was sold at 4.5 to 4.8 cents for export and at 4.35 to 4.5 cents for Canadian delivery; news coating paper was sold for export at 5 cents, and for Canadian delivery at 5 to 5.25 cents.

A. P. Costigane, secretary and safety engineer of the Ontario Pulp and Paper Makers' Safety Association, recently visited the mills in the Niagara peninsula at St. Catharines, Thorold and Merritton, in the interests of safety work, in which he reports much enthusiasm manifested by both employees and management. Mr. Costigane is at present on a tour of the pulp and paper mills in Fort William, Port Arthur, Sault Ste. Marie and other points in Northwestern Ontario; and on his return will leave for England where he will spend some time on business.

The Spruce Falls Co., Ltd., Kapuskasing, Ont., report that their woods operations were very successful during the year. Their wood has all been driven on the main river close to their rossing plant. During the winter the company took out some eighty thousand cords of wood, fifty thousand cords of which was included in the drive, while the remaining thirty thousand was purchased from the settlers in the surrounding district. The contractors all delivered their quota of wood within the given period and the settlers all completed their contracts.

Lancelot S. Dixon, of the L. S. Dixon & Co., Ltd., Liverpool, England, of which firm he is managing director, is making an extended business and pleasure trip to Canada, from Montreal to Victoria, B. C. He is accompanied by Mrs. Dixon. Mr. Dixon, whose firm is selling agent for the Hurcott Paper Mill, Kidderminster, although in his eightieth year, is still alive to the interest of his company with a view to extending its connections in the United States. The object is to introduce the latest British dry flong.

Permits to cut burnt timber on some two hundred square miles of land at the head of the Rivière au Rat and its tributary, La Petite Rivière au Rat, in the Lake St. John district, were recently sold to Price Bros. & Co., Ltd. Price Bros. must exploit these limits within five years and are obliged to give a guarantee of $5,000 to that effect. The timber limits referred to are located near some of the other limits already owned or on which Price Bros. have rights.

Hon. Charles McCrea, Minister of Mines in the Ontario Government, states that if for any reason the foreign sources of sulphur should cease to supply Canadian pulp and paper mills, it would be quite possible to meet the need from Canadian sources. It is understood that new processes for sulphur recovery from pyritic ores of nickel and copper are being developed in a promising manner.

The Porcupine Pulp and Lumber Co., of Hoyle, Ont., of which M. E. Crouch is manager, is busy rossing wood at the rate of about 125 cords a day. The company has nine thousand cords of wood in the Porcupine River and about three thousand cords in the pond at Hoyle. The wood came down the drives in nice shape. Labor is plentiful in the north and is being paid at the rate of $3.50 a day.

Three steel towers, 100 feet high, have been erected at Sand Lake, Franz and Oba, in the Sault Ste. Marie fire district for protection against forest fires. The towers were erected on the highest hill near their respective stations at a cost of approximately $500 each, and tower men are on duty all the time, being provided with field glasses with which to detect fire within a radius of fifty miles.

Pulp Wood Statistics

Heavier stocks of pulpwood on hand in New England, but lower stocks than at the same time in 1923 in New York and the Middle Atlantic states are shown by the quarterly pulpwood report prepared by O. M. Porter, assitant secretary of the American Paper and Pulp Association. The lake state stocks are slightly above the figures of a year ago, as are those of the south. On the other hand, outstanding contracts in New England are less than a third of the total of the same date last year, New York state 10 percent higher, and the lake states lower. The total of wood on hand or contracted for is about the same in New York and New England as a year ago, but much lower in the other three regions.

Prices show a wide variation. New York state mills have paid more for peeled spruce and balsam than at any time since the fall of 1921, but in New York and the lake states the prices are somewhat lower than in March, 1923.

The figures show that the usual input of pulpwood for future consumption has featured the last few months, the stocks on hand in New York and New England showing a large increase over the stocks on hand in September.

The pulpwood quarterly statistics were formerly compiled by the Woodlands Section, and are being continued by Mr. Porter, who handled this task for that section, and the number of mills reporting for March was larger than for any other period since this compilation was begun, except in December, 1923.

New Portable Pipe Threading Machine

A new portable pipe threading, cutting-off and reaming machine has been brought out by the Williams Tool Corporation, Twelfth and Liberty streets, Erie, Pa., the principal features of which are that it is portable, demountable, has a handy self-contained grinder and three drives, motor, belt and hand, built right into the machine, and besides it has a wide threading, cutting-off and reaming capacity.

A unique feature of the machine is the fact that it can be converted into a power unit in two and a half minutes, and by using a flexible shaft it will operate hand stocks up to and including 8 inches.

The weight of the machine, complete with motor and all standard parts, being only 520 pounds, it is easily removed to

any part of the shop or taken out on the job where work is to be performed.

It is so designed that it can be knocked down in two minutes and thirty seconds and reassembled in less than four minutes. The motor is standard one-horsepower mounted on a hinged table in base of machine, and the power is transmitted by belt to the flange driving pulley of machine.

The machine can be converted to belt drive by simply removing the motor belt and driving directly from a line or countershaft.

The capacity of the machine makes it possible to cut either right or left-hand threads on pipe ¼" to 2", and on bolts from ⅜" to 1½", inclusive. The cutting off capacity covers the same sizes of pipe and bolts as listed above. The machine will ream the inside and chamfer the outside of pipe, inclusive from ¼" to 2". The longest run thread at one chucking is 10½".

The dies are interchangeable and operated by cam and lever, a graduated die head making unnecessary the use of blank gauged for setting the dies.

A special feature of this portable machine is a high speed emery wheel, which is mounted on the pulley shaft at the rear of machine and driven direct from the motor. The wheel is set at such a height above the floor as to be most convenient to the operator. The machine is so designed that when the operator uses the emery wheel no other part of the machine is running except the motor and wheel, giving him the full power of the motor for grinding purposes.

Installation at plant of Atlantic Pulp and Paper Corp., Savannah, Georgia.

Blowers for Pneumatic Conveying

THE above illustration shows three Roots Rotary High Pressure Blowers being used in the plant of the Atlantic Pulp and Paper Corporation for conveying wood chips.

These Blowers, like all Roots Equipment, were strongly built to withstand severe service and have been operating for years under trying conditions.

Installation cost of a Roots Blower is low, while the cost of labor and upkeep is practically eliminated. Either the suction or pressure system may be used.

Let our engineers show you just what a Roots High Pressure Blower can accomplish in your plant.

Bulletins on Roots equipment for Pulp and Paper Mills will be sent on request.

ROOTS

Rotary Vacuum Pumps for Vacuum Rolls, Flat Suction Boxes, Dryer Rolls and Heating Systems.

Rotary Pumps for water, stock, oil and other liquids.

Rotary Blowers for oil burners, agitation of liquids and pneumatic conveying.

Positive Displacement Meters for air, gases and liquids.

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Northern New York News

July 1, 1924.

Activity in Power Circles

Power deals of much interest to the paper trade industry have taken place in Northern New York in the past few weeks. The most important is the merging of the Power Corporation of New York with the Northern New York Utilities, Inc., both dominated by the Floyd L. Carlisle interests. The Power Corporation of New York was organized a few years ago to develop electrical power for the paper mills in the Carlisle group. The merger makes the Power Corporation of New York, by which the company will be known, the largest group of inland powers in the east. The combined properties of the system are valued at $32,000,000 and control 300,000 horsepower. As a result of the deal the Northern New York Utilities becomes the distributing agent for the power corporation. In addition to power already developed the company has under construction a 20,000 horsepower development at Soft Maple on the Beaver river and two other undeveloped sites on the Oswegatchie which will give an additional horsepower of 35,800. By reasons of interconnections already made the company can tie in with the Niagara interests.

Immediately after the merger was effected it was announced that a two million dollar stock issue would be placed on the market in order to develop new power. The Soft Maple dam project will cost $2,370,000.

At the present time large blocks of stock in the Northern New York Utilities are held by the St. Regis Paper Company. By the organization of this holding company, the St. Regis company will be free to dispose of its Utilities stock and devote its entire capital to expansion, which will probably be on the Canadian side, nearer the supply of pulpwood.

Judgment for DeGrasse Paper Co.

After litigation extending over six years, the court of appeals of the state of New York has affirmed the judgment of $85,000 obtained against the Northern New York Coal Company by the DeGrasse Paper Company. The plaintiff in the case conducts a large paper mill at Pyrites and delivers its entire product to the New York World, the Pulitzer interests being big stock holders in the DeGrasse company. The defendant is a large jobbing house, dealing in bituminous coal.

Claim was made that the defendant agreed to deliver between June 1, 1916, and April 1, 1917, between 30,000 and 40,000 tons of soft coal at a price ranging from $1.50 to $1.55 a ton. Less than 19,000 tons were delivered to the plaintiff when the deliveries ceased. In the meantime the price of coal had greatly advanced and the plaintiff was compelled to bid in the open market for coal. The plaintiff claimed that the coal company broke its contract so it could take advantage of the higher prices that were offered in the open market. The defendant held that it was unable to make deliveries because of a strike in the mines which cut down production.

The DeGrasse Paper Company began action in 1917, alleging breach of contract and demanding $100,000 damages. The case was tried in 1918 and the coal company put in a counter claim for $25,000 for coal unpaid for. This was conceded by the plaintiff and a judgment of $25,000 was given the coal company. The case was appealed by the paper company and a new trial was granted. This time a verdict of $79,000 was granted the plaintiff, which included $50,000 damages and $29,000 represented the balance of $25,000 due the coal company, plus interest and costs. The coal company appealed to the appellate division which unanimously affirmed the judgment. The case then went to the court of appeals which also upheld the verdict, closing the case.

Forestry Opportunities in New York

"Five years of a national campaign for forestry have come to a successful conclusion with the passage by Congress of the Clarke bill, and its signature by the President," said Dr. Hugh P. Baker, executive secretary of the American Paper and Pulp Association, before the White Plains Rotary Club recently.

"Now the next step is for New York, which has been a leader in the forestry movement, to go ever further than it has gone before, and to take the fullest advantage of the adoption of a national policy, by a still more aggressive campaign for the fullest use of its forest lands.

"Congressman Clarke, author of the bill, is a New Yorker. Rotary and other public spirited organizations and clubs of the state have done much to develop a better appreciation of what forestry means to the people, and New York should maintain its past leadership in this great movement.

"Over a third of the area of the state is non-agricultural, and should be growing timber, as a crop for industrial use, or for the beautification of the northern regions where recreational development of the individual goes hand in hand with industrial utilization as a reason for growing trees.

"The new forestry law will be of the greatest importance in the development of a more extensive growing of trees. There is no longer question that the price of wood has risen to the point where with the new federal legislation it is now possible to grow timber commercially as a crop for profit."

Price Shop Won't Affect Watertown

Despite the depression felt in paper circles in some sections of the country, conditions in and around Watertown are declared to be good. The Sherman Paper Company reports orders sufficient to last the rest of the year. Officials of the St. Regis Paper Company declare that the reported drop to $60 a ton in the price of German paper will not be seriously felt here because the German mills are unable to export enough paper to affect the price of American and Canadian made paper. It is generally expected, however, that sooner or later the mills on the American side will be forced into the manufacture of specialties owing to the fact that the Canadian mills, nearer the source of pulpwood, can undersell them.

The recent cut of $2 a ton by the Canadian mills and the International Paper Company means a loss of about $1,000 daily in the mills about Watertown. Over-production is given as the reason, and the publishers are buying only what paper they need from week to week.

The Carthage Machine Company of Carthage, makers of pulp and paper mill machinery, is locating a branch factory in Belleville, Ont., where it has purchased the entire plant of the J. C. Wilson Manufacturing Company, Ltd. The Canadian company will be known as the Carthage Machine Company of Canada, Ltd. F. S. Wilson, president and principal stock holder of the Wilson company, has been appointed vice-president and general manager. A. K. Hinds, general manager of the parent company, is president and A. F. Wardwell, president of the parent company, is secretary-treasurer. The Carthage Machine Company was founded in 1889. The principal products are pulp and paper shredders, wood washers, chip screens, pulp grinders, wet machines, plug machines, core-cutting and punching machines, sulphur burners, cylinder moulds, savealls, thickeners, ball-bearing blow valves, cast iron pipe and fittings, bronze and lead work and other special lines. Among their recent developments is the manufacture of machines for the making of bags and envelopes.

The Bagley & Sewall Company of Watertown, makers of the paper machine which recently broke the world's production record for 24 hours at the Algonquin mill at Ogdensburg, has presented a gold medal to General Superintendent William O. Dickinson in honor of the feat. On April 24 the Algonquin machine turned out 102.9 tons of newsprint. Stuart D. Lansing, president of the Bagley & Sewall Company, presented the medal, which is of solid gold, wrought by Tiffany, two inches in diameter. The inscription reads: "Presented by the Bagley & Sewall Company to William Dickinson, the first man in history to produce 100 tons of newsprint in 24 hours, 102.9 tons made on a 204-inch machine, April 24, 1924, at the Algonquin Corporation, Ogdensburg, N. Y."

Mr. Dickinson has been making paper for 35 years. He served eight years at the Donnacona mill in Canada before coming to Ogdensburg.

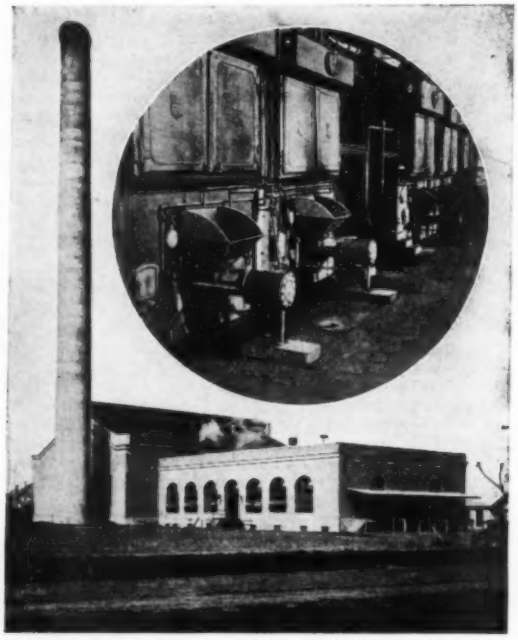
Byron B. Taggart of this city, head of the Taggart Brothers Paper Company, has been elected treasurer of the Royal Taggart-Bates, Inc., of New York. The company which was recently organized with 20,000 shares of no par value will manufacture paper bags. Other officers of the company are Thomas M. Royal of Philadelphia, president; A. M. Bates of Chicago, vice-president; B. C. Benter of Philadelphia, secretary. The large-four story building in North Philadelphia, formerly occupied by the Fox Motor Company, has been purchased by the Thomas M. Royal Company of Brvn Mawr for the manufacture of bags by the new company. The company is closely affiliated with E. S. and A. E. Robinson, Ltd., of Bristol, England. The method of printing used by the company is entirely new.

No decision in the Jeremiah T. Carey case involving the presidency of the International Brotherhood of Paper Makers

Re-orders—Based on Performance

TRADE MARK

The logical result of the application of the *all underfeed* principle to a side cleaning stoker is *better efficiency*—this, translated into dollars and cents savings, means a satisfied user.



Results Count—

it is actual performance that tells the story. Wherever a "Lateral Retort" Stoker has been installed with the stipulation that the remaining stokers on the order or immediate repeat orders were dependent on the performance of the initial stoker, orders for more "Laterals" have been forthcoming.

When such concerns as the following order and re-order "Lateral Retort" Stokers it is a proof that *better efficiency* is being realized with the "Lateral"—

Mead Pulp & Paper Co.	Newport Electric Corp.
Chateau Frontenac	American Glue Co.
Methodist Hospital	Mulkey Salt Co. Blake Bldg.
Baeder-Adamson Co.	Canadian Products Co.
Chevrolet Motor Co.	

The combination of the *all underfeed principle* and *multiple retort* effect makes available to smaller boiler units (from 150 to 500 H. P.) the proved advantages of multiple retort stoker firing.

As no basement is required the installation cost of this stoker is comparatively small.

Ask for Bulletin BL-1 for full information on this Stoker.

SANFORD RILEY STOKER COMPANY

SANFORD RILEY STOKER CO.

"RILEY" Underfeed Stokers — *"JONES"* Underfeed Stokers — *"MURPHY"* Automatic Furnaces

PULVERIZED COAL INSTALLATIONS

9 Neponset Street, WORCESTER, MASS., U. S. A.

BOSTON NEW YORK PHILADELPHIA PITTSBURGH BUFFALO CLEVELAND DETROIT
CINCINNATI CHICAGO ST. PAUL KANSAS CITY DENVER CHARLOTTE DALLAS

The UNDERFEED STOKER COMPANY OF CANADA, LTD., TORONTO

is expected before fall, neither side of the controversy having yet submitted briefs to Justice E. N. Smith. It was expected that a decision would be made early in June. The Carey case started when Mr. Carey, who has headed the organization for the last 13 years, sought to restrain its officers and canvassing board from recognizing the election of Matthew H. Parker of Richmond, Va., first vice-president. Carey brought the action on the ground that Parker, who opposed him in the biennial election in October, was declared illegally elected by the board of canvassers. This board threw out as void 500 votes which were cast for Mr. Carey, thereby swinging the election to Mr. Parker.

Jewell Succeeds C. C. Burns

Corwin T. Jewell, for two years assistant to the general manager of the St. Regis Paper Company, was chosen general manager at a meeting of the directors of the company held in New York. Mr. Jewell succeeds the late C. C. Burns. He has been with the St. Regis Company and its predecessors for the last 12 years.

Five years ago he was made superintendent of the Herrings mill and prior to that time he had been in the sales office of the St. Regis Company. Before that he was at the head of the finishing department of the Deferiet mill. In May, 1922, he was made assistant to Mr. Burns, and during Mr. Burns' long illness he acted as general manager.

Fire Menaces Pulp Wood Tract

The timber tract of the Sherman Paper Company in Lewis county, one of the best in that section, was menaced by forest fires several times during the last month. About 150 acres of land were burned over before the fire was gotten under control.

The Sherman tract was untouched, although the flames several times nearly reached it. Several hundred men were pressed into service to fight the flames, which were finally checked by heavy rains. The Sherman tract is valued at $50,000.

As a part of the general program of reforestation on the part of the state, the St. Regis Paper Company set out this spring 255,000 trees and the Racquette River Paper Company set out 250,000. The Northern New York Utilities, Inc., set out 450,000. Glens Falls set out 250,000; Carthage, 60,000; Malone, 20,000; Plattsburg and Watertown, 10,000 each; the town of Watson, Lewis county, 10,000. More than 8,500,000 trees were distributed by the state conservation commission for planting.

Robert J. Buck of Watertown and Montreal, president of the George Hall Coal and Shipping Company of Montreal, is secretary and treasurer of the Mont Louis Siegneurie Company, Ltd., of Montreal, which has purchased 75,000 acres of lower Canada freehold limits on the Gaspe peninsula. It is said to be the finest stand of timber in that section, and contains a million cords of pulpwood. The price paid is said to be about $600,000. The company is capitalized at $1,000,000. Frank A. Augsbury, chairman of the board of the Hall company, is president of the company.

A sprinkler system, said to be one of the most complete of its kind, has been installed in the Algonquin mill at Ogdensburg to supplement the fire protection afforded by the city. A pump with a capacity of 3,500 gallons a minute has been set up on the river bank which can be connected directly with the city mains. The pumps are electrically driven and an auxiliary steam plant has been installed. About the wood pile are three steel towers 40 feet high on which will be mounted monitor nozzles, enabling the flooding of the wood, or they can be directed on the roof of the building. The interior of the mill is provided with the regulation sprinklers.

Ward Comstock, formerly of Watertown, traveling engineer of the International Paper Company, was instantly killed June 13, when a steel tape with which he was measuring a pile of pulp wood came in contact with a high voltage wire. The accident occurred at Caribou, Maine. He graduated from Cornell and served overseas in an engineering unit. He was connected with the Watertown mills of the International Paper Company three years.

Attorney William H. Gilman, vice-president of the City National Bank of Watertown, has been appointed trustee of the bankrupt Rumford Falls Pulp Reduction Company of Rumford, Me., at a meeting of the creditors held before the referee in bankruptcy in Watertown. The City National Bank is one of the largest creditors of the company, holding negotiable paper to the value of $13,500.

Wilford L. Forsythe, once office boy for the Victoria Paper Mills of Fulton, has been elected president of the company to succeed the late Edwin R. Redhead. Nine years ago he was made secretary. He has been associated with the mills since 1898. The Citizens National Bank of Fulton has been named temporary administrator of the estate.

It is expected that Federal Judge Cooper will order turned over to the R. F. Hammond Company 395 tons of pulp of the Carthage Sulphite Company for the benefit of the creditors. The pulp is valued at $23,700 and this disposition of it was recommended to the court by the committee of creditors.

The cores of the paper rolls shipped by the Algonquin Paper Company of Ogldensburg to the Hearst publications in Chicago are now being shipped back by boat. Heretofore they have been shipped by rail. One steamer a few days ago brought back 1,400 cores.

Freight traffic up and down the St. Lawrence river this season shows a tremendous increase over that of last year. Records of the canal office in Montreal show that in May this year 30,348 tons of pulp were shipped in comparison with 20,792 tons for May last year.

Philip T. Dodge, chairman of the board of directors of the International Paper Company, on June 19 threw the switch which officially placed in operation the new million dollar power plant of the company located three miles north of Glens Falls.

The largest paper shipment by water made this year from Ogdensburg was made by the steamer Brandon of the Rutland line which carried 220 tons of newsprint from the Algonquin mill to the Hearst press in Chicago.

Edwin R. Redhead

Edwin R. Redhead of Fulton, president of the Victoria Paper Mills of Fulton, died in Syracuse May 30. He was on his way home from the general conference of the Methodist Episcopal church at Springfield, Mass., when he was stricken. He was born in Brownville, Jefferson county, Jan. 6, 1851. He graduated from Syracuse university in 1874 and took up the practice of law. He gave up this profession to enter the employ of F. G. Weeks of Skaneateles, paper manufacturer, serving as salesman five years. In 1880 Mr. Redhead formed a partnership with Mr. Weeks and purchased the interests of the original Victoria Paper Mills Company. Mr. Redhead became secretary, treasurer and general manager and in 1922 he gained control of the company and became its president. His estate was valued at $250,000 and under the terms of his will $50,000 was given to Syracuse University, of which he was a trustee. Twenty-five thousand dollars was given the city of Fulton for park purposes and $10,000 to the Fulton public library. Every employee of the Victoria Paper Mill who had been employed by the company five years or over was bequeathed $500.

Louis Emerson

Louis Woodward Emerson, president of the Schroon River Pulp and Paper Company, vice-president of the Imperial Wall Paper Company, William Campbell Paper Company and Staunton's Paper Company, Ltd., of Toronto, died at his home in Warrensburg, N. Y., June 10, after a six months' illness. He was prominent as a banker, Republican leader and former member of congress. He was a director of the Hudson Valley railroad and subsidiary companies of the Delaware & Hudson railroad and various financial institutions in northern New York.

Thomas Woods

Thomas Woods, for the last nine years superintendent of the West End Paper Company at Carthage, died at Clifton Springs June 17, where he had been receiving treatment. He was 65 years old.

Mr. Woods was born in Rock City, Saratoga county, and had been engaged in paper mill work practically all his life. Besides being superintendent of the West End mill, he had been superintendent of mills at Norwood, Natural Dam and Palmer Falls. Funeral and interment were at Corinth.

A Paint That Meets Paper Mill Needs

BITUMASTIC SOLUTION is made expressly for industrial purposes and, as a paint for metal surfaces, is unexcelled. It withstands moisture, acid fumes and high temperatures, prolonging the life of costly equipment.

BITUMASTIC SOLUTION gives a hard, brilliant finish. It is easily applied and dries quickly.

There are many uses for BITUMASTIC SOLUTION throughout a paper mill. Wherever there are steel surfaces its use will be the means of preventing rust and cutting down maintenance costs.

A trial will fully convince you that BITUMASTIC SOLUTION is the proper paint for much of the work in your mill. Therefore, we shall send a sample for trial purposes free if you will send in the coupon below.

Send in the coupon today—and give it a trial.

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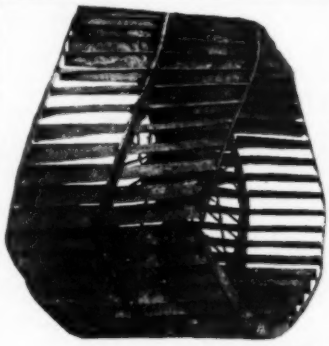

This blast wheel is an extraordinary demonstration for the strength of Plexiform construction and bears out the claim of Bayley engineers—proven many times by less severe tests—that Plexiform construction has the maximum of structural strength, though comparatively light in weight.

STRENGTH

This wheel was crushed under tons of derbis when a four-story building collapsed upon it.

Not a rivet was broken, not a joint loosened, nor a fracture in any part.

Strength of materials is sometimes proven by unusual tests, by strains out of all proportion to those experienced in actual use. 21

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MILWAUKEE

Power!

Power—smooth, driving, efficient. Production—continuous and economical. These you are entitled to demand from Belting. Production depends upon power, Power upon the belt and the Belt upon its joining. Crescent Belt Fasteners insure continuous power transmission—maximum production at minimum expense.

Crescent Belt Fasteners do not weaken the Belt, no holes to enlarge and give way. Nothing to wear. Crescents become the strongest part of the Belt. For an interesting booklet on this Aid to Power, write to the Crescent Belt Fastener Co., 247 Park Ave., N. Y.

CRESCENT BELT FASTENERS

Ohio News

July 1, 1924.

Monthly Meeting of Miami Valley Division

The June meeting of the Miami Valley Division of the Superintendents' Association was held at the Manchester Hotel, Middletown, Ohio, on Saturday evening, June 28th.

This meeting was scheduled to be held in the afternoon and evening in the Grove at the summer cottage of Mr. Charles Shartle of the Shartle Brothers Machine Company.

The rains of several days prior, and the heavy downpour of Friday night and Saturday morning, made the grounds very soft and not in condition to be used with any degree of comfort. It was decided by those in charge of the affair to call off the meeting at that place and hold it at the hotel instead.

About thirty men were present when dinner was served and in the absence of both the chairman, Mr. L. T. Murphy, and the vice-chairman, Mr. Homer Ferguson, Mr. H. W. Server, of the Miami Paper Company, presided as chairman.

A report from the General Committee of the Dayton Convention was read, and a very gratifying result was noted. The expense of the evening banquets was sponsored by the Allied Industries of the Paper Industry and the Miami Valley Paper Manufacturers' Association. The luncheons by the Mead Companies and the Rice Coal Company. The report shows that the largest sum of money ever turned in to the treasury of the National Association after all expenses had been paid was unequaled in the history of the association.

A rising vote of thanks and appreciation of the splendid work was given to Mr. Server, who served as general chairman, and his co-workers, Dr. F. G. Henry, Tom Harvey, H. D. Martindale, E. T. A. Coughlin and Thos. E. Keogh, for the good work.

Mr. R. L. Eminger, the newly elected National Secretary of the Superintendents' Association, was present and was called upon for remarks. Mr. Eminger stated he was glad to be present and congratulated the Miami Valley Division for the wonderful success of the Dayton Convention.

He made several references to letters that had been received from the secretaries of other divisions, praising the wonderful success that attended the Dayton Convention and of the very high moral standard and dignified manner in which everything was carried out.

The remainder of the evening was spent in reading and discussing another part of the paper on the subject of "Difficulties Encountered in Printing Papers," by Peter J. Massey. Many discussions were entered into by the members present, and much information was gained upon matters that are of vital importance to both the paper makers and the printers.

There were two superintendents of the printing room of large printing establishments present, who gave some valuable information along the lines of the difficulties they encounter in their work.

The secretary presented two questions which came from the superintendent of a large eastern paper mill, on the subject of a vacuum dryer and a felt conditioner. A very gratifying bit of information was given by several members on the subjects, and it will be forwarded to the superintendent in answer to his questions.

Several names were suggested to the secretary for membership in the association and he was instructed to confer with them and get their application for membership.

The matter of holding the next meeting was presented by the chairman, and it was decided to omit the July meeting, on account of many of the members being away on vacation during that month.

It was decided after some discussion to hold the meeting on the third Saturday in August, which date falls on the 16th. The meeting will be held in the grove at Mr. Shartle's cottage, and it is hoped that the weather man will not open his showers and interfere with this meeting.

There being no further business a motion was made to adjourn.

New Paper Stock Co. in Franklin

The Franklin Paper Stock Company is now in operation in the old Eagle mill in Franklin. Sol Slavin, Harry B. Slavin, L. P. Reiger, and Norman Slavin, officers of the company, have equipped the plant with all modern machinery and the company will engage in the packing and grading of rags and paper stock, together with the production of washed and sanitary wiping rags.

The Franklin Paper Stock Company is the outgrowth of the Dayton Sanitary Rag Company, whose assets and business have been acquired. The factory consists of 40,000 square feet of floor space and is equipped with the latest type of conveyors and electric bailers for the purpose of sorting, cleaning and repacking of rags and paper stock. The machinery includes also a laundry machine for the production of sanitary wiping rags.

Mr. R. L. Eminger, secretary of the American Pulp and Paper Mill Superintendents' Association, has established his office at 56 North Main street, Miamisburg, O. Mr. Eminger is associated with the Miami Paper Co.

A Permanent Industrial Exposition

All kinds of industrial products, from toys to trucks and from hairpins to heavy machinery, are to be bought and sold in the Permanent Industrial Exposition, a national institution, which is to be one of the big business institutions of the industrial city of Newark, N. J. Excavation work began late in April on a site on the city's principal thoroughfare, Broad street, opposite Lincoln Park, for a building which will house from 700 to 1,000 manufacturers' exhibits. The building will be one of the biggest in New Jersey, with a tower 235 feet high, the tallest structure in the state. Brilliantly illuminated by special electrical devices, this tower will be a conspicuous architectural landmark for the thousands who travel through Newark daily on seven trunk lines.

As an enterprise which is largely civic in character, the exposition has been endorsed by the Newark city government and by the boards of trade of Newark and of New Jersey. According to the management, it will be "a city within a city," with an average daily population of from 5,000 to 10,000 and with crowds that will greatly exceed these figures at times of special feature events. Located in the Metropolitan district, thirty minutes from Broadway, it will be easily accessible for the world's buyers who visit New York. The idea is to provide the latest word in industrial expositions as permanent wholesale markets, with showrooms, salesrooms and offices, where manufacturers can have as much privacy as in isolated locations.

An imposing feature will be a large central court rising 90 feet from the main floor to an arched roof of paneled glass. The court will be surrounded on all upper floors by balconies supported on ornamental arches. The exterior of the building will be done in a modified French renaissance style and the interior will be worked out in Spanish renaissance effects.

Following is a classification of the building:

Main Floor—Automobile salon, machinery exhibits, automobile accessories.

Second Floor—Art and gift novelties, jewelry, silverware, rubber and celluloid goods, advertising specialties, toilet supplies, notions, etc.

Third Floor—Hardware, cutlery, art metal goods, aluminum ware, etc., china, pottery, porcelains, enameled ware, tin ware, toys, etc.

Fourth Floor—Radio, electrical appliances and supplies, lamp and lighting fixtures, household devices, brass goods, etc.

Fifth Floor—Leather goods, trunks, store supplies, athletic goods, phonographs, phonographic supplies, chemical products, etc.

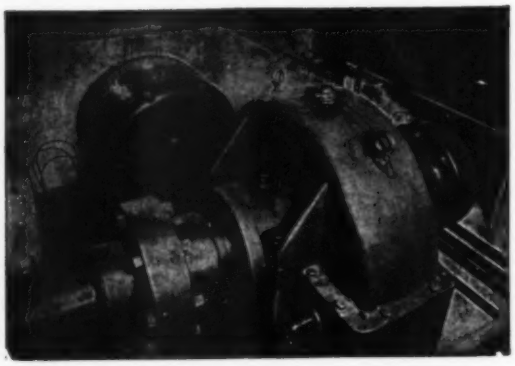
Sixth Floor—Building materials, manufacturers' club, convention hall.

Tentative plans are under advisement for additions to the plant of the National Roofing Mfg. Co. at Cly, Pa. This is a continuation of its expansion program inaugurated a number of months ago, to include a 1-story extension to the betterment to develop about double the present capacity. It is proposed to also install another paper machine and auxiliary equipment.

The Mobile Paper Mills, Inc., Mobile, Ala., has work under way on its proposed new plant at Crichton, near Mobile. The main building will be 1-story, 250x350 ft., with power house and storage building adjoining. Contract for erection has been let to the Mobile Steel Co. The plant will be equipped for extensive capacity and is estimated to cost in excess of $250,000.

The Ramier-Hall Waxed Paper Co. have recently acquired a number of buildings in Memphis, Tenn., which they will remodel and equip for a plant for the manufacture of waxed and kindred papers.

FEWER PARTS—LESS WEAR



Cleveland Worm Gear Reduction Unit applied to Mill Line Shaft. 400 H.P. 1200 R.P.M. Reduction in Worm Drive 14⅔ to 1

Over 12 years devoted to the manufacture of Worm Gear Speed Reducers exclusively, qualify us to assist you in your problems.

Fewer Parts mean Less Wear—Less Wear means Longer Life, Less Noise, Increased Operating Efficiency and Lower Maintenance Cost.

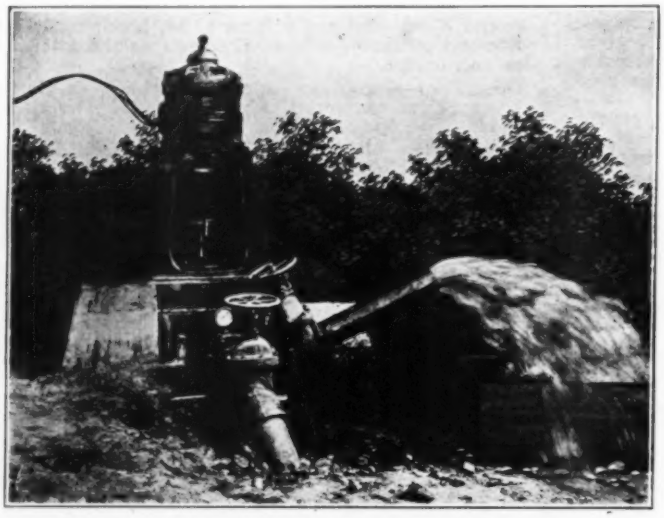
Compare the 2 Gears and 1 Point of Contact of a Cleveland with the multiple gears and points of contact of other gear reducers.

Cleveland
WORM GEAR
REDUCTION UNITS

There is a Cleveland Representative near you. You may have a catalog on request.

The Cleveland Worm & Gear Co.
East 40th Street Cleveland, Ohio
"America's Pioneers in Worm Gearing"

LAYNE WELL WATER SYSTEM



WATER OR NO PAY

What wouldn't it mean to your plant to have a plentiful supply of pure well water—pumped from scientifically constructed Layne Gravel Wall Wells by the Layne Vertical turbine pumps into surface reservoirs, elevated tanks, or directly into the mains.

So efficient is this method of procuring a water supply that hundreds of industrial plants are saving thousands of dollars a year by adopting the Layne System.

You Will Be Interested

to know our water supply contracts are made on a guaranteed basis. You either obtain the amount of water agreed upon, or it does not cost you a cent. Water or No Pay.

Our associate companies have been organized to give you prompt and efficient engineering services; write to the one nearest you.

LAYNE & BOWLER CO., Memphis, Tenn.

FACTORIES: MEMPHIS, TENN.; LOS ANGELES, CAL.; HOUSTON, TEXAS

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Layne & Bowler Chicago Co., 860 Old Colony Building., Chicago, Ill.
Layne Arkansas Co., Stuttgart, Ark.
Layne Ohio Co., Wyoming Station, Cincinnati, Ohio
Layne Southeastern Co., 1st Nat'l Bk. Bldg., St. Petersburg, Fla.
Layne Central Co., Memphis, Tenn.
Branch Office, Crowley, La.

Michigan News

July 1, 1924.

Large Forebay with Walls of Reenforced Concrete

Conducting water 3,300 feet from the dam to the mill of the Manistique Pulp and Paper Co., the forebay is 160 feet wide and 25 feet deep with walls of reenforced concrete.

The canal is crossed by a state highway bridge, 300 feet long and a railroad bridge, 275 feet long. A unique feature

lies in the fact that the bottom of the highway bridge is set in the water to a depth varying from two inches to three feet, while the railroad bridge extends to a depth of six feet below the water level. The canal furnishes water to six wheels, each developing 1,000 horsepower and driving magazine grinders, and a seventh driving the electrical unit developing 1,500 horsepower.

Foldwell Agents Guest of Allied Mills

Foldwellers from four cities—Chicago, Detroit, Indianapolis, and Toledo—were in Kalamazoo June 26 and 27, guests of the Allied Paper Mills, manufacturers of Foldwell enamel for the Chicago Paper Company. Those attending the two-day meeting here were winners of an annual quota contest staged by the Chicago Paper Company, and represent men who have disposed of large quantities of Foldwell enamel.

Arriving in Kalamazoo Thursday afternoon, the visitors were taken by motor to Gull Lake where a dinner for 75 guests was served at 7:00 at Turner's Resort. Following the dinner, Alex G. Gilman, president of the Allied Paper Mills, acting as toastmaster, introduced the program for the evening, and in that connection, explained numerous improvements to the Allied properties.

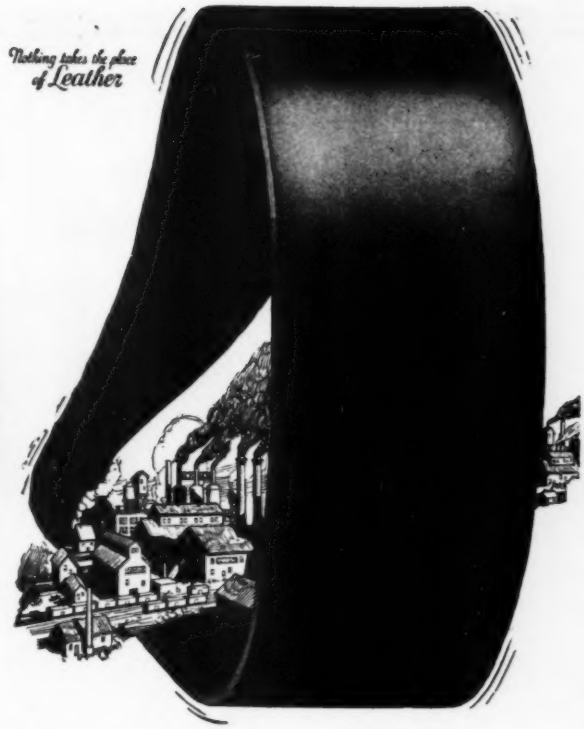
Among the improvements recently completed at Allied, Mr. Gilman cited the following in the King Division; a new Chandler and Taylor variable speed engine to drive the particular machine on which Foldwell raw stock is made; chain drive for back line; three self-cleaning Walpole screens; Jordan engines and other physical improvements aggregating $50,000 which include the going over of both Fourdriniers and beaters.

Following Mr. Gilman's talk on the mills in which he also touched on the business situation, urging salesmen to counteract the pessimistic attitude which was cropping out in certain quarters with facts disproving it, W. N. Gillett, vice-president of the Chicago Paper Company, gave a pointed talk on the national scope of Foldwell distribution, paying high tribute to the Kalamazoo mills for their part in making this distribution possible by turning out the best sheet of folding enamel on the market.

Arthur Stevens, treasurer of the Chope Stevens Paper Company of Detroit, spoke on the distributor's attitude toward Foldwell. Mr. Stevens in his remarks praised not only the quality of Allied papers, but the service behind these papers.

George H. Gerhpeide, vice-president of the Allied mills, gave an interesting technical talk on the raw materials going into Foldwell, following which A. R. MacDonald of the mill's sales promotional department spoke on his impressions of the mill, its equipment and personnel.

Among the sales contest winners heard from were C. H. Gregory and James Cant of the Chope-Stevens Paper Company, E. A. Melchert and J. G. Rowley of the Chicago Paper Company, after which W. K. Lamport of the Lamport-MacDonald Company, advertising counsellors for the Allied Mills and Chicago Paper Co., talked on Foldwell advertising over the past several years. John W. Powell, sales manager of the Allied Mills, gave a short talk on the importance of the mill brand and on the facilities of Allied properties to care for tonnage and special order requirements. James M. Smith,



They can "take it" *and you know it!*

POWER pounds away at belts. Many fall under its punishment. But Standardized Series belts can "take it." And you *know* it. For *standardization* gives you accurate knowledge of what you are buying.

Graton & Knight have grouped their brands in the Standardized Series of Leather Belts. Each brand made to rigid requirements for its own class of work. The right belt for the right work, always.

Processes and materials are carefully *standardized.* You always get duplicates in quality and service. So you are sure of satisfactory replacements.

These Standardized Series belts are greedy for work. Their rugged leather endures under belt-killing loads. *Standard* in every respect. They can be trusted.

Write for booklet 101-S, which gives full information about Standardized Series belts for paper mills.

THE GRATON & KNIGHT MFG. CO.
Worcester, Mass.

GRATON & KNIGHT

Check this list of Graton & Knight products for informative booklets on the subjects which interest you.

Flat Belt	Lace Leather	Whole Leathers
Round Belt	Leather Packings	Cements
Fan Belts	Leather Straps	Preservatives

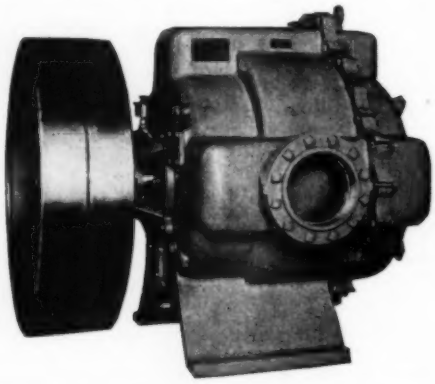
GRATON & KNIGHT
Standardized
LEATHER BELTING

THE HYTOR VACUUM PUMP FOR FLAT BOX SERVICE

Vacuum Produced Absolutely Without Pulsation

No vibration

Saves Wires



Only One Moving Part

No Rods, Pistons Crank Shafts, Loose Moving Parts and No Gears

No Expert Attendance

Western Representative
T. H. SAVERY, JR.
1718 Republic Bldg.,
Chicago, Ill.

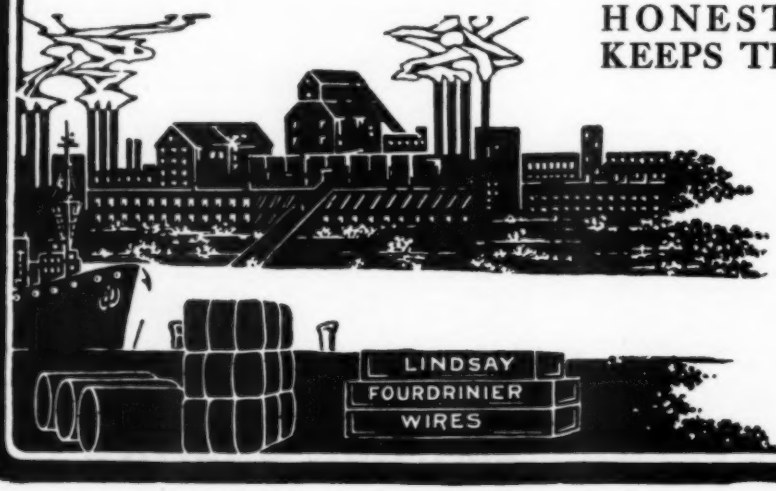
The Nash Engineering Co.
WILSON POINT ROAD
SOUTH NORWALK, CONN.

New England Representative
G. H. GLEASON
Nottingham Bldg.,
Copeley Square,
Boston, Mass.

Real Merit Placed

Lindsay Fourdrinier Wires

In Many Mills



HONEST SERVICE KEEPS THEM THERE

They are ready to serve you

The Lindsay Wire Weaving Company
Collinwood Sta., Cleveland, Ohio
"Ask any Papermaker"

manager of advertising for the Chicago Paper Company, gave an interesting talk on forthcoming Foldwell advertisements.

Friday the Allied's guests were conducted through the King and Monarch properties where different processes were explained, and at noon were taken to the Kalamazoo Country Club for luncheon, following which everyone was drafted into a gold tournament for which several prizes were arranged.

Among the visitors were: J. W. Know, J. L. Smith, W. N. Gillett, L. Middleton, C. Rasmussen, J. Northcott, O. C. Bock, F. H. Foster, E. A. Melchert, J. G. Rowley, H. E. Fick, C. J. Wright, W. A. Nuess, C. H. Krause, all of Chicago; C. H. Gregory, James Cant, Arthur Stevens, Frank Keogh, Detroit; H. M. Niecodemus, Indianapolis. W. K. Lamport, A. R. MacDonal, South Bend, Ind. Carl F. Prell, J. T. Dyer, W. H. Townsend, R. E. Curtain, E. H. Klinck, Morgan Levi, Toledo.

Escanaba Pulp and Paper Company Makes New Improvements

Since the first of the year the Escanaba Pulp & Paper Co. has taken over the traction company of Escanaba, enabling them to further develop their water power. At their No. 1 power plant a new brick building was put up, three new Leffel turbines installed and the head increased six inches. The tail race at the No. 3 plant was lowered by taking four and a half feet of rock out of the channel for about a quarter of a mile, increasing the power 40 percent. For additional power a new 2,500-kw. steam turbine unit was installed at the mill. This operates with a surface condenser at 28 in. vacuum with an average water rate not exceeding 12.7 lbs. per kw. The switchboard was remodeled and new panels provided. A new 4/0 feeder line with steel poles connects the generating station and dispatching station.

Many new improvements have been made in the mill to bring it up-to-date in every respect and enable the most efficient operation. In the boiler house new coal and ash handling equipment were installed, the furnace volume increased 30 percent by new Turner type baffles, the basement remodeled, superheaters, feed pumps and new piping installed, resulting in low-priced power. The plant now operates at 180 lbs. pressure and 500° F. total temperature. All condensate is returned to the hot well for boiler feed. so that the plant now uses about 10 percent raw water as make-up.

Suction couch and press rolls and the Pope air appliance for threading the tail were installed on the paper machines.

The production of the mill has been increased 20 tons per day, bringing it up to 135 tons of newsprint. Attention is being given to the exterior of the mill in making a new lawn and putting in trees, all denoting a well kept mill and making for efficient operation.

Forestry Possibilities in Michigan

What Michigan offers in the way of forestry opportunities was discussed at a conference of Michigan paper manufacturers, lumbermen and others, when the Rotary Club of Kalamazoo was entertained, together with many visiting guests from other parts of the state, by Felix Pagenstecher at a dinner in the Bryant Paper Co.'s offices recently.

How Michigan can use profitably for industrial production of timber its idle acreage was the subject discussed by Dr. Hugh P. Baker, executive secretary of the American Paper and Pulp Association, himself a Michigan Agricultural College graduate, and formerly in charge of the forestry departments of the state institutions in Iowa and Pennsylvania, and dean of the New York State College of Forestry.

"Michigan," he said, "has today under cultivation only 51.7 percent of its 18,126,391 acres, valued at an average of $59 per acre, figuring the value of plow land without improvements. Less than one-tenth of the forest land of the state is under forestry management, and some estimates place the figure as low as 5 percent, even including the farm woodlots. On the basis of an area of over 36,000,000 acres, therefore, we find nearly 20,000,000 acres of forest land, most of which is doing nothing to meet its share of the state's productive ability.

"Michigan, once one of the greatest forest states, should not leave this vast area unproductive. To make this land productive and to add to the state's economic wealth, there should be a proper method of taxing forest lands to encourage timber growing protection against fire, addition to the forest land of the state, and its management according to forestry principles, and co-operative action—this last perhaps one of the most important—between the state and the private owners to practice forestry management.

"Every acre should be utilized to the financial profit of the

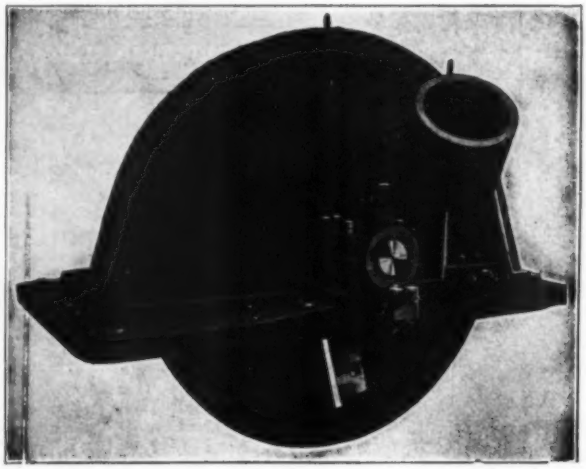
STEEL
for Immediate Shipment from Stock
For Maintenance, Construction and Repairs

Bars	Boiler Tubes
Shapes	Boiler Fittings
Structurals	Corrugated Sheets
Rails	Concrete Reinforcing
Plates	Welding Rods
Sheets	Babbitt Metal
Rivets	Tool Steel
Bolts	Bar Iron
Nails	Refined Iron
Wire	Floor Plates
Chain	Safety Treads
Turnbuckles	Small Tools
Shafting	Machine Tools, etc.

Write for the Ryerson Journal and Stock List —the "Key" to Immediate Steel
JOSEPH T. RYERSON & SON INC.
CHICAGO ST. LOUIS CINCINNATI DETROIT BUFFALO NEW YORK

SIMONDS
Barker and Chipper Knives
The best knives for Pulp Mills. Made of the finest edge-holding steel, skillfully made and tempered right to withstand wear.
Write for Catalog and Prices
Simonds Saw & Steel Co.
Fitchburg, Mass. Chicago, Ill.

Pulp and Paper Mill Machinery



Chippers

That produce clean, evenly cut chips, free from slivers.

Our patented improvements make this possible.

Made in
48", 84", 90" Sizes

Right or Left Hand
Three or Four Knives

Description on Request

We manufacture

Wet Machines

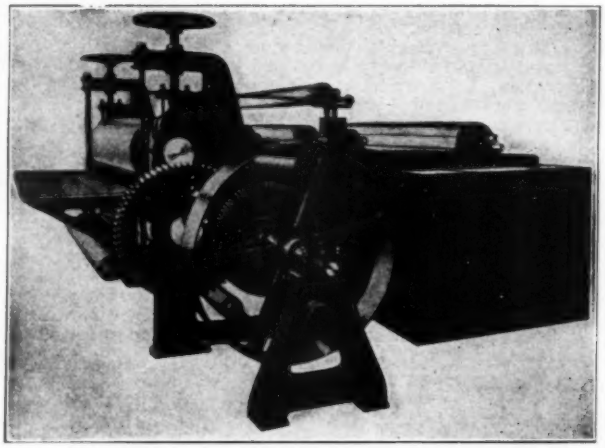
that give satisfaction

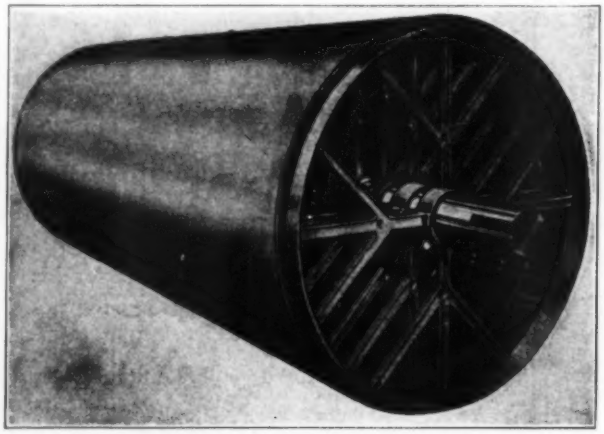
Single Cylinder
Double Cylinder

Any width face or diameter mould.

We also make a combination wet machine and decker.

Particulars on Request





Cylinder Moulds

Made on our special machinery—will stand long wear.

Hand sewed covers—Removable end Clamping Rings

Give a smooth surface, therefore a longer life to your felt.

Satisfaction Guaranteed

We also manufacture the "WOLF (Patented) MOULD."

We also manufacture 3 and 4 pocket Grinders, Screens, Barkers, Pumps, Iron, Brass, Bronze and Lead Castings

UNION IRON WORKS **Bangor, Maine**

owners, the individual community and the state as a whole."

Rush Sutherland Addition

The O. F. Miller Company has a large force of men actively engaged in the erection of the addition to the conversion plant of the Sutherland Paper Company. The reinforced concrete base and floor is in and work has started on the upright. The structure is designed to be one story high, no basement, with that section immediately fronting in Lincoln Avenue two stories high, the second floor to be used for the offices. It will cover a ground area of about 40,000 feet.

The low ground west and north of the paper mill division is being steadily filled in, and the Lincoln Avenue frontage has been paved and beautified. The main purpose of the filling is to provide parking space for automobiles owned by the company's employees.

Rex Paper Co. Gets Judgment

Summary judgment was granted by Judge George V. Weiner, Saturday in the case of the Rex Paper Company against the Van Gorder Company in circuit court of Kalamazoo. Clarence Bradfor, vice-president of the Rex Company testified at the hearing, that two promissory notes, one for $2,079.63 and the other for $1,339.39, had been given by the defendant company to the Rex Company, and that only one payment of $434.06 had been made on them.

The plaintiff was given judgment for the remaining amounts, with interest, a total of $3,497.43.

Sternfield to Bogalusa Paper Co.

A. B. Sternfield, for five years traveling buyer of waste paper material for D. Graff and Sons, this city, has resigned his position to accept employment with the Bogalusa Paper Company, at Bogalusa La.

He will be traveling representative of the company. Mr. Sternfield will leave Kalamazoo the last of this week and Mrs. Sternfield will follow in about two months.

All the smoke stacks, both brick and steel, at the Bryant and Superior Division and Imperial Divisions of the Bryant Paper Co. are to be torn down in the near future. All the steel stacks are down, and the brick ones are being taken down now. There will be only two stacks left standing, the one at the Milham Division and the new steel stack erected recently at the new power plant.

George McQuire, formerly master mechanic at the Bryant Division of the Bryant Paper Co., has been made Master Mechanic of the Bryant Paper Co. He is working directly under Mr. Rutz, who is superintendent of Power and Maintenance for the whole plant.

The old Mullen Brothers Paper Company's mill at St. Joseph, Mich., acquired by the Mid-Lakes Paper Company, has been thoroughly remodeled for the manufacture of water-proof paper and products. W. H. Fairchild is president and general manager of the concern.

Plans for the erection of a 2-story mill, estimated to cost $50,000, are being considered by the Sears Paper Co. of Saginaw, Mich. This is to replace a portion of its plant which was recently destroyed by fire.

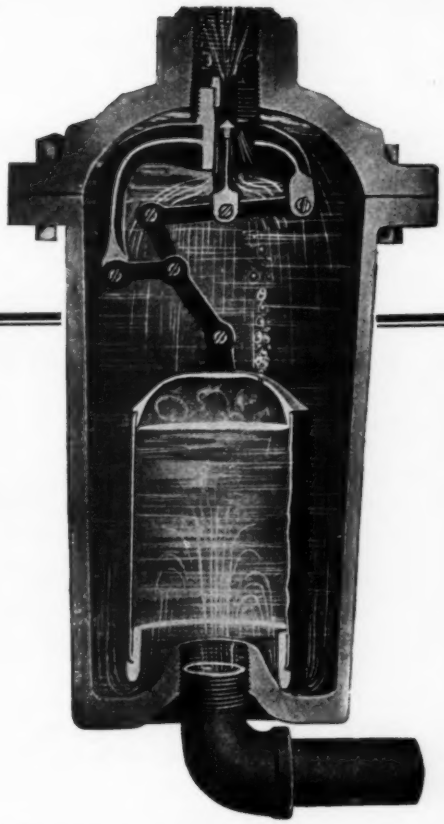
Mr. Stanley Norman has been in charge of the sulphite mill of the Munising Paper Co. since March 1. Mr. Norman was formerly with the Laurentide Co., having spent a number of years since then in South America in paper mills in Brazil.

Mr. and Mrs. R. S. Kellogg were in Munising, June 25. They left here for Chassel, Mich., to be guests of Mr. Hames, manager of the C. H. Wooster Lumber Co., of Chassel.

New Paper Plant for Chicago

The Bradford-Duffin Paper Company is no more. W. J. Bradford, Jr., continues the business of the firm at 1051 West Thirty-fifth Street, Chicago, Ill., while John V. Duffin has leased the building at 3532 South Morgan Street for a new business. He will use the premises for office, warehouse and factory.

Mr. Duffin is the representative in this territory of what is said to be the largest wax paper mill in the country. He will carry a full stock of waxed papers, and in addition make wax paper specialties for bakers, confectioners, etc.



The nearest approach to trap perfection

HERE'S what Guy L. Warden, of Gibbstown, N. J., a veteran operating man, says about the Armstrong: "The present plant has the most severe conditions for steam traps of any I've been in. After two years' experience with your steam trap under conditions that could not be met by any other bucket trap, I am convinced you have a product that is the nearest approach to trap perfection in my years of experience."

Isn't that quite a send-off for the Armstrong and isn't it doubly valuable coming, as it does, from a man who's been through the mill?

We believe that it backs up all our claims for the Armstrong and that it proves that every paper mill should have the Armstrong catalog. Shall we send it then? Where? Just send your address to the Armstrong Machine Works, 322 Steam-Saving Street, Three Rivers, Michigan.

Armstrong Steam Trap

The Standard Armstrong Trap is furnished for pressure from 0 to 300 lbs.—for service on vacuum where pressure on the inlet is greater than on the outlet—for draining water from compressed air expansion tanks, separators, etc.—for service on grease. The Armstrong Special is for pulsating pressures and unusual conditions.

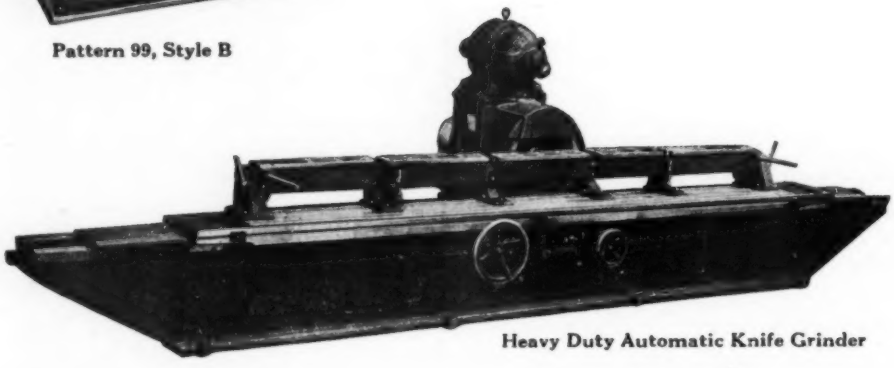
PI7-M-RTG

Pattern 99, Style B

WE build grinders to grind knives from 30 inches to 17 feet in length for belt or motor drive.

May we send you literature describing them in detail?

We also manufacture grinding wheels



Heavy Duty Automatic Knife Grinder

THE SPRINGFIELD MFG. CO.

320 Mt. Grove St. Bridgeport, Conn., U. S. A.

Established 1836

SOUTHWARK

HYDRAULIC PRESSES

for

Pulp, Sulphite and Baling

THE presses illustrated are the Southwark Standard Type, designed for use with Southwark Trucks. These presses permit the pulp to be pressed directly on the truck, this effects a great saving in time and labor.

We have many other designs in hydraulic presses, including the self-contained type, in which the pump and motor is an integral part of the press, no other hydraulic apparatus required.

Special presses or machines designed to suit your requirements.

A complete line of pumps, accumulators, valves, fittings, etc., is carried in stock.

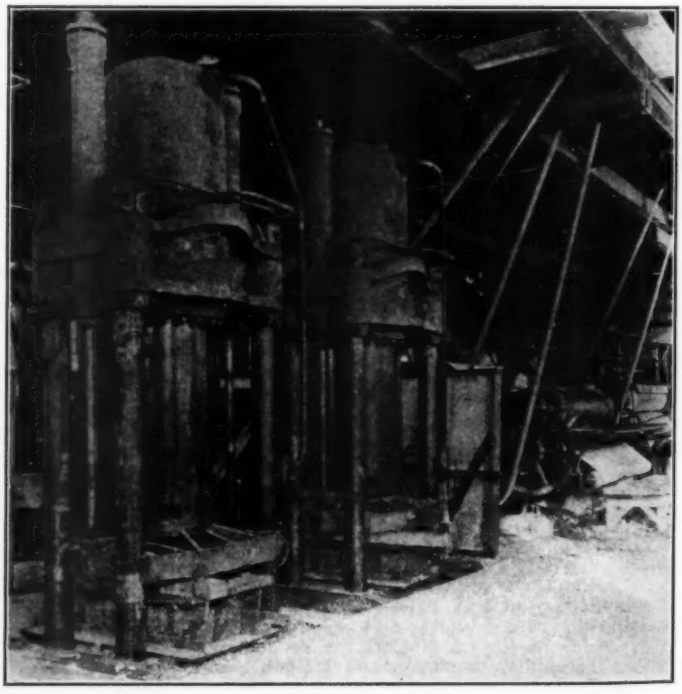
SOUTHWARK

Foundry and Machine Company

PHILADELPHIA, PA.

Swetland Building CLEVELAND

Fisher Building CHICAGO



Two 600 Ton Southwark Pulp Presses. Part of a Battery of Six Southwark Machines Installed at the Backus-Brooks Co., Kenora, Ontario

Wisconsin News

July 1, 1924.

Meeting of Kraft By-Products Association

A meeting of the Kraft By-Products Association, which is composed of sulphate mills of Wisconsin and Minnesota was held at the Union League Club, Chicago, Illinois, on June 3rd.

The following members were present:

Mr. L. M. Alexander of Nekoosa-Edwards Paper Company, Port Edwards, Wis.

Mr. G. W. Forrester of Minnesota & Ontarios Paper Company, International Falls, Minn.

Mr. O. Bache-Wiig of Wausau Sulphate Fibre Company, Mosinee, Wis.

Mr. E. G. Goodell of Wisconsin River Pulp & Paper Company, Stevens Point, Wis.

Mr. Hansen of Marinette & Menomonie Paper Co., Marinette, Wis.

Mr. B. T. McBain, chairman, and Mr. L. E. Smith of Nekoosa-Edwards Paper Co.

Dr. White Consulting Engineer of University of Michigan. Ann Arbor, Michigan.

Mr. McBain handed in his resignation as chairman of the association, which was accepted; and Mr. E. G. Goodell was elected as chairman.

Dr. White read his report which was carefully gone over. The rest of the time was spent in taking up and discussing the possibility of an installation of a plant for the recalcining and reclaiming of lime from sulphate mills at one of the mills, and this matter will be probably settled at the next meeting.

Fire Destroys Chemical Recovery Plant

The Chemical Recovery Plant of the Stevens Point Pulp and Paper Company of Stevens Point, Wisconsin, was destroyed by fire, which was caused by lightning on June 8th, at 11:30 p. m., with an approximate loss of $25,000.00.

At the time the plant was struck there were six men working in the plant and in a few minutes the entire building was in flames. The building had concrete walls, the rest being of steel and wood. All that remained of the building after the fire was the walls. These men immediately tried to extinguish the flames with the company's fire equipment, and within a few minutes the Stevens Point fire department had arrived on the scene, but the flames had gained such headway that they could not be stopped and the entire attention was put on checking them.

The roof of the building was destroyed as was most of the rest of the building. No machinery was destroyed and neither were the tanks. It is thought that the walls are in such shape that they can be used in rebuilding.

The fire forced the mill to close down, and the entire mill force will be used in rebuilding the plant which was devoted to the reclamation of chemicals used in the pulp manufacture turing process. It will probably take one to two months before the plant will be in operation again.

Tug Company Purchases Ferries

The Newaygo Tug Company of Wisconsin Rapids, Wisconsin, have purchased from the Canadian Pacific Railroad two old car ferries, and these will be put into operation as barges for the transportation of wood pulp from Port Arthur, Canada, across Lake Superior to Ashland, Wisconsin. From Ashland the pulp will be transported by rail to the different mills of the Consolidated Water Power and Paper Company at Wisconsin Rapids, Biron, Appleton and Stevens Point, Wisconsin.

These old ferries have been operating between Windsor, Ontario and Detroit, Michigan. The tugs Erna and Butterfield of the Newaygo line will tow the ferries to Ashland. These ferries are 327 feet long, with 4 foot beam and draw 12 feet of water. It is expected that about 30,000 tons of wood pulp will be towed across Lake Superior this year by the above tugs.

In addition to the above the tug James C. Whalen of Port Arthur, Canada, will tow rafts of pulp wood, which will be made up at Black Bay east of Port Arthur, to Ashland, and this will also be brought by rail from there to this company's different plants in Wisconsin.

Changes in Personnel in Interlake

Many important changes have been made in the Interlake Pulp & Paper Company of Appleton, Wisconsin, which is a branch of the Consolidated Water Power & Paper Company.

Mr. H. A. Babcock, who has been manager of the Inter-

GURNEY QUALITY

"QUALITY" as applied to a manufactured product is unmistakable and can mean but one thing, namely, a skilful blending of the best in design, material and workmanship. ¶The Gurney bearing is a quality product. For no other reason has it found its place in machines known the world over as quality products. For no other reason does it hold that place year after year, and for no other reason is it in steadily growing demand. ¶Manufacturers who build Gurney bearings into their motors have sold their trade on the bearing question, for the user of Gurney equipped motors knows that he buys *quality*.

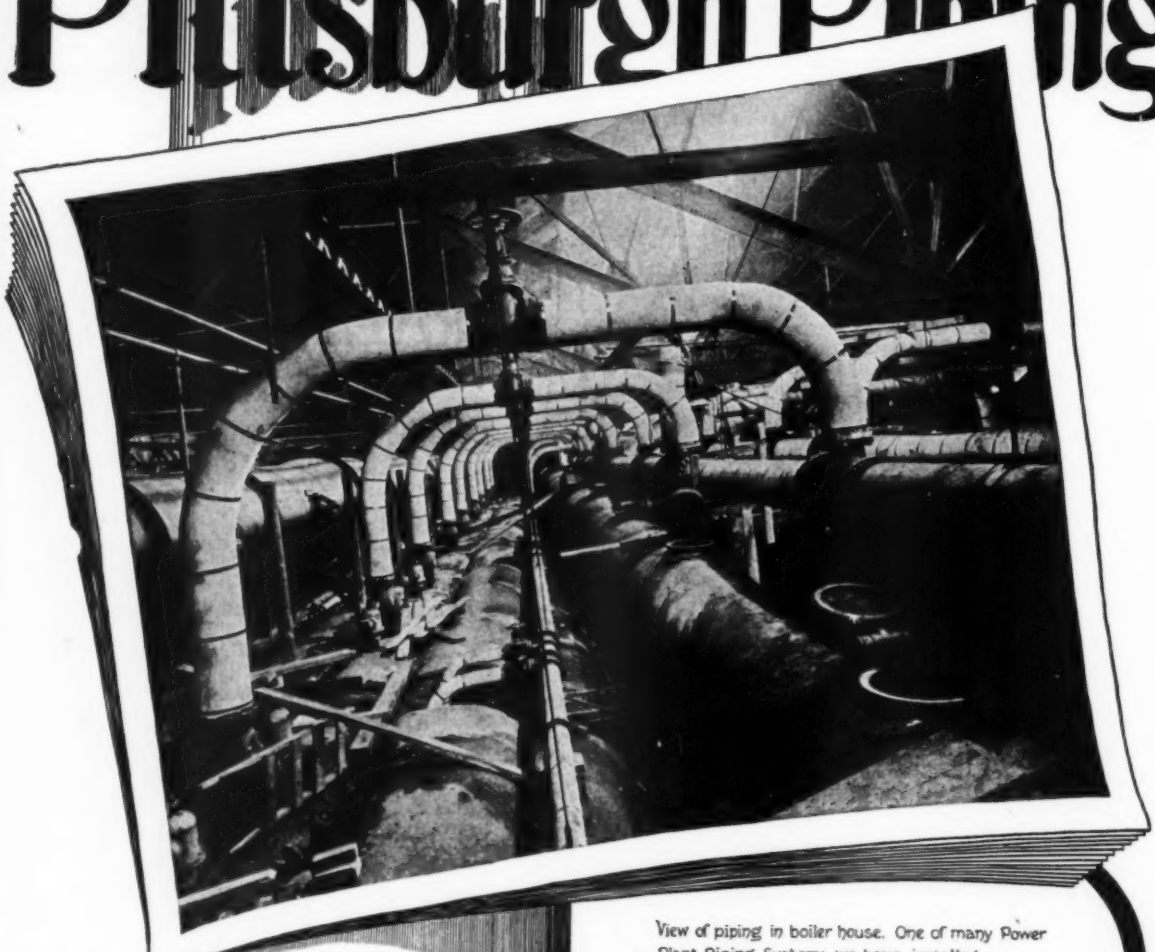
We have an expert Engineering Staff which will gladly co-operate with you

18250

GURNEY BALL BEARINGS

Marlin-Rockwell Corp.—JAMESTOWN, N. Y.

Pittsburgh Piping



View of piping in boiler house. One of many Power Plant Piping Systems we have installed.

KNOWLEDGE, Experience and Complete Organization—welded together for the manufacture and fabrication of Power Plant Piping that stands for Uniformity, Quality and Distinctive Service.

"WHEN YOU THINK OF PIPING THINK OF PITTSBURGH PIPING."

Pittsburgh Piping & Equipment Co

MANUFACTURERS & CONTRACTORS

Specialists in Welded Wrought Steel Headers, Flanged Iron and Steel Fittings, Pipe Bends and Fabricated Piping for Power Plants.

Pittsburgh, Pa.

NEW YORK, 220 BROADWAY — CHICAGO, PEOPLES GAS BUILDING
CLEVELAND, AMERICAN TRUST BUILDING. — SAN FRANCISCO, MONADNOCK BUILDING
INDIANAPOLIS, TRACTION TERMINAL BUILDING. — BIRMINGHAM, AMERICAN TRUST BUILDING

lake Mill for about four years, handed in his resignation recently. Mr. Vance P. Edwardes, superintendent of the digester department for quite a long time also handed in his resignation. Both Mr. Edwardes and Mr. Babcock recently returned from a trip to Europe, where they studied the pulp manufacturing situation in the interest of the above company.

Mr. C. L. Bachelder, superintendent of the bleach plant which was started and erected only recently, has also tendered his resignation, and Mr. J. T. Whelan, office manager, and some other employees of the office have handed in their resignations.

Forestry Possibilities in Wisconsin

"Forestry in Wisconsin should go hand in hand with the agricultural development of the state," said Dr. Hugh P. Baker, executive secretary of the American Paper and Pulp Association before the Kiwanis Club recently, "and as a native of the state I am proud to say that the forestry movement in the state is developing handsomely, as compared with many other middle western states. The development of forestry practice needs to be encouraged, however, for even the present progress is not as great as should be the case in a state with such wonderful resources in land adapted for the practice of forestry.

"Not the least interesting evidence of the development of forestry sentiment is the organization perfected only a few months ago by the paper manufacturers of the state in the formation of the Wisconsin Forest Protective Association, an organization which is securing much support from the lumber industry as well. The securing of legislation of a truly progressive type which will encourage the growing of trees as a crop to be used by the state's industries is necessary, however, if the forest land is to be adequately used.

"I am one of those who believes that forestry today has passed the sentimental state, and has become an economic factor in the nation's development. I believe that trees cannot be planted, and forestry practiced along scientific lines with the possibility of financial profit.

"Wood has been too cheap, but has now reached a cost to industry which forces forestry into the economic stage. An idle acre is as much an economic loss as an idle man. Wisconsin's agricultural land should be utilized to produce agricultural products. Its land not fitted for agriculture, but primarily for forest growth, should be utilized and not allowed to remain idle."

Permission was granted to the Wisconsin Valley Electric Company of Wausau, Wisconsin, by the railroad commission of Wisconsin on May 9th to erect a dam for power developments in the Wisconsin River in the towns of Scott and Merrill, Lincoln county. The above company is tied in with some of the different paper mills in the Valley and furnishes them some of their power.

Wisconsin Paper Mills Need Association Work

By B. T. McBain

What good can an association of Wisconsin pulp and paper mills do for the industry at large?

The manufacturers of pulp and paper in each section should take a lesson from organized insurance orders or lodges or, if you please, from organized labor. These orders know they cannot get the kind of results they must get unless they are divided into local or district lodges. Each district has its own problems and no national association can be in touch with these problems in one state without getting into trouble in another.

The pulp and paper mills of Wisconsin alone, or with Michigan and Minnesota, should form a local or district association of their own to be affiliated with the parent organization at New York, if I may use that word, but having its own constitution and by-laws, its own secretary and manager, and carry on its own business as pertaining to its own state or district.

In other words, learn from and follow in the foot steps of the Superintendents' Association, which is divided into ten districts or divisions, while the national officers control the destinies of the association as a whole, the division officers handle the business of the districts, and should do so.

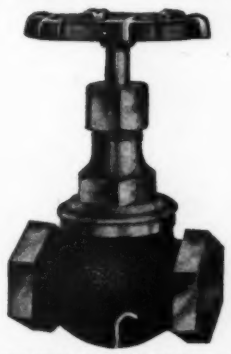
What good does it do to go to New York only once each year and shake hands? Fine, but not as beneficial as the industry needs.

What good does it do to have the sales people meet each month with East, West, North and South while the conditions in the different sections are different cost, freight and selling

The Stickle system of removing air and condensation from the dryers, combined with the Stickle automatic control of steam, will produce a more uniform dried sheet with less steam consumed than can be done with any other equipment. We will guarantee this under a competitive test.

Stickle Steam Specialties Co.
Indianapolis, Ind.
New York Office: 46 East 41st Street, New York
Boston Office: 52 Sudbury Street

PRATT & CADY VALVES

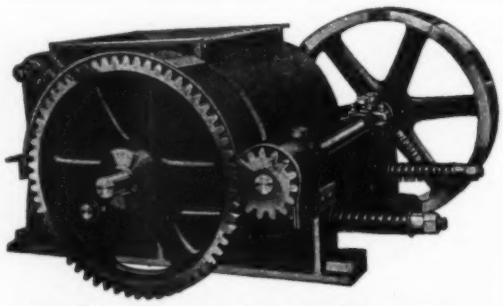


NO. 1. BRONZE GLOBE VALVE—150 LBS.

The Pratt & Cady 150 pound bronze globe valves are regularly made with renewable asbestos discs. There are also special discs for water, air, gasoline, etc.

The same renewable discs are available in a union bonnet line for the same pressure.

Reading Steel Casting Co., Inc.
Pratt & Cady Division
General Sales Office: Bridgeport, Conn.
929 Connecticut Ave.
An Associate Company of the American Chain Co., Inc.



A Webster Coal Crusher in Your Power Plant

will insure a regular supply of properly sized coal for your automatic stokers at a low cost per ton.

They are built in single and double roll types, in capacities to handle 30 to 200 tons per hour.

Shall we send you our catalog showing our various types and sizes of coal crushers?

THE WEBSTER MFG. CO.

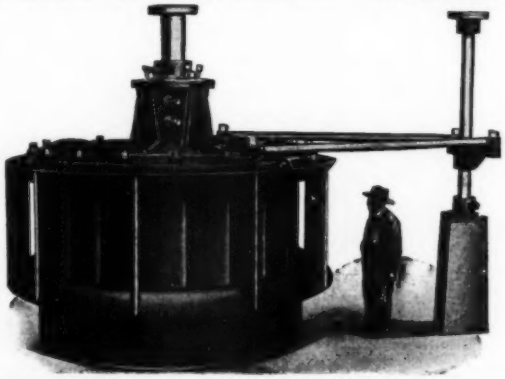
4500-4560 Cortland Street

CHICAGO, ILL.

Factories, Tiffin, O., & Chicago. Sales Offices in Principal Cities.

LEFFEL

TURBINE WATER WHEELS



HIGH SPEEDS, HIGH POWERS, HIGH EFFICIENCIES

All of our turbines are designed and built to suit location and requirements, by engineers and experts who have had years of experience in this particular line of work. Turbines fully guaranteed.

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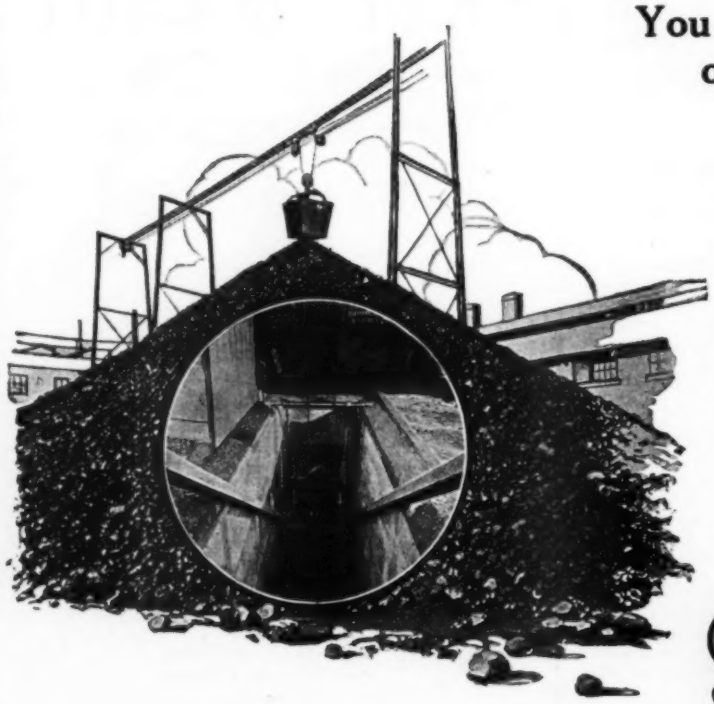
BOSTON, MASS.....80 Boylston St
ATLANTA, GA.....Fourth National Bank Building
MINNEAPOLIS, MINN.....Plymouth Building
LANCASTER, PA.....Woolworth Building
PETERBOROUGH, ONT., CANADA...William Hamilton Co., Ltd.



You Can Save Thousands of Dollars with This Equipment

THE Godfrey Conveyor will unload and store your coal at a cost of from three to seven cents a ton and do it so quickly that you will never have to pay demurrage charges. Figure what this amounts to on your annual tonnage and you will at once see the advantage of investigating this proposition. No matter what your requirements may be, there is a type of Godfrey equipment to meet them. Simply put your problem up to us and we will solve it without placing you under any obligation.

Ask for Bulletin A-1

GODFREY CONVEYOR CO.

Elkhart, Indiana

Godfrey CONVEYOR

prices? And particularly when they cannot talk about these. Fine—but not beneficial.

What good does it do to go and listen to the head of this association or that one and try to tell us where we are wrong and yet tell us nothing but what we already know and have read in the press? Fine—but not beneficial.

What each district needs is a district or state organization of pulp and paper manufacturers, where the owners, presidents and managers will meet for one whole day and evening each month, always at one place, for Wisconsin, say Milwaukee, and while there not only shake hands, but discuss what is good for the industry as a whole, and for Wisconsin or this district in particular.

The members of this association would be taught to keep conversion costs on the same basis, and these costs could be tabulated and not only reported to members, but be discussed at this meeting, so the manufacturer who now thinks he is making his paper so much cheaper than another will see the error of his way and stop being the distributing factor he may now be in the market.

There are many things allowed by law to be discussed and brought before such a gathering that would be of value to the industry in the district as well as for the industry as a whole and the meetings would not only be fine but beneficial.

If one of the Wisconsin managers would call a meeting at Milwaukee from letters I have received since my first article on this subject I feel certain a good gathering would result and an organization initiated and quickly perfected which could handle all problems including forest protection, taxation and other vexatious ones requiring unity of action.

Income Tax and Paper Industry

That the efforts of the American Paper and Pulp Association in the matter of the income tax bill saved the paper industry of the United States an unwarranted increase of about $1,000,000 a year in taxes on surplus accrued more than eleven years ago, is the statement made in a special letter to association members by Dr. Hugh P. Baker, the association secretary. He says:

"Co-operation of the paper industry, through the American Paper and Pulp Association, saved the industries dependent on natural resources $50,000,000 a year in new taxes.

"The tax bill signed by the President on June 2 eliminates the provisions aimed at this confiscation of earnings accrued prior to March 1, 1913. The elimination of these provisions was due entirely to the campaign waged against these provisions of the bill by the lumber, mining and paper industries.

"The amount saved the paper industry by the American Paper and Pulp Association in this campaign is certainly not less than $1,000,000 a year."

The letter gives the details of the new bill, and points out the maner in which the bill, instead of imposing new confiscatory taxes, has new provisions for the protection of surplus accumulated or of capital paid in prior to March 1, 1913, and urges association members to examine carefully these provisions of the new law so that full advantage may be taken of this additional protection to industry, and stockholders in paper companies.

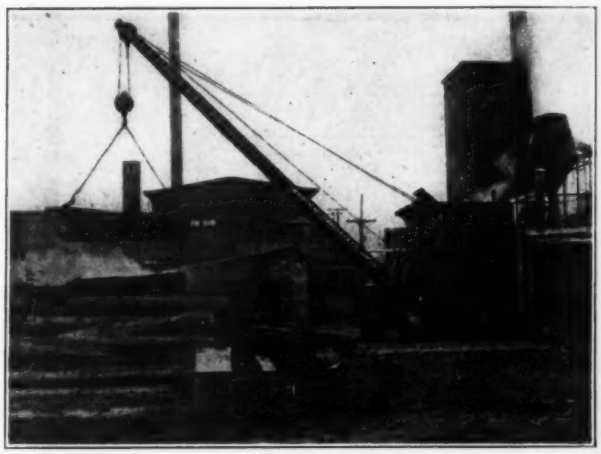
Tennessee Mill Insures Employees

An arrangement has been made by the executives of the Tennessee Paper Mills, Chattanooga, and their employees for a group insurance policy through which not only life protection is provided, but weekly benefits will be paid in the event of illness or accident.

The policy, placed with the Metropolitan Life Insurance Co., involves a total of $74,000 in insurance and covers sixty-six persons. Minor employees are provided with $1,000 in life insurance, and if disabled by illness or accident will receive payments of ten dollars weekly over a period of twenty-six weeks. Supervisors have $2,000 of life insurance and weekly payments of $20 are provided.

The policy is issued on the so-called contributory basis, with both the employees and the employing company participating in the payment of premiums. President John Stagmaier arranged for the insurance plan.

The insurance company maintains a free visiting nurse service for its policyholders, and the employees of the Tennessee Paper Mills are eligible for this. A nurse will attend any insured worker who is ill, advise with the family on his care and see that instructions by the attending physician are followed. This company also will distribute frequently instructive pamphlets on health and sanitation subjects.



TYPE T CRANE USED BY GOSHEN VENEER CO.

Specially Built to Suit the Capacity of Your Mill

The cost of handling pulpwood and logs is surprisingly low when you use a crane that is designed especially for your mill.

To buy a machine simply because the manufacturer builds only a certain size is poor economy. Our cranes range in capacity from 5 tons to 50 tons and are designed for handling small pulpwood with a grapple or single logs weighing up to 10 tons.

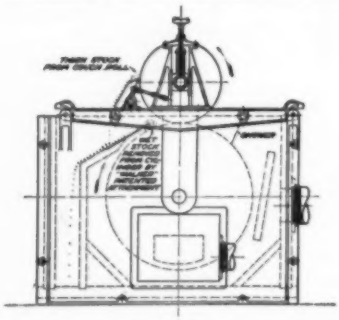
They are mounted for traveling on railroad track or on the ground surface and may be equipped with either electric, gasoline or steam power.

It will pay you to investigate. Our bulletin 241 is interesting and is sent free on application.

ORTON & STEINBRENNER

Crane Builders

608 S. Dearborn St. Chicago, Ill.



Standard Deckers with Walker Attachment

(Patent Applied For)

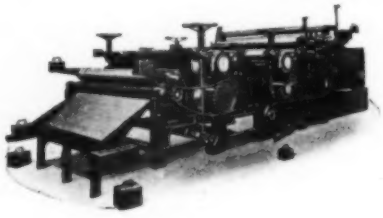
Our Deckers equipped with the Walker Attachment as shown in cut will increase your capacity 50% without requiring additional floor space, power and maintenance.

One firm has ten machines so equipped, which saved the expense of building a new Decker room.

Improvements in couch roll housings offer ready means for regulating consistency of stock.

It is a big advance in Decker design.

Write us today for further particulars.



Rogers and Special Wet Machines

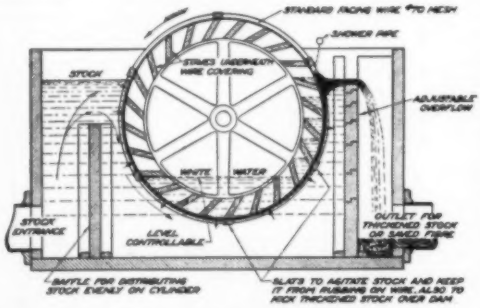
IMPROVED AND SIMPLIFIED

SINGLE AND DOUBLE PRESS FOR CONVERTING CHEMICAL PULP INTO SHEETS 48% DRY

25-35 TONS air-dry pulp per 24 hours. Built in 72" width, with patented pulp weakening and separating device or our new automatic knife cut-off attachment. A real labor saver.

FREIGHT CHARGES are greatly reduced. Savings on this item alone often pay for the machine in one year.

All infringements will be vigorously prosecuted



A. O. Wood Machine

Used as Pulp Thickeners, Savealls, Pulp Washers and Water Filters

ADVANTAGES:

Reduced Wire Costs	No Couch Roll
Enormous Capacity	Minimum Repairs
Only 2 H. P. Required	No Doctor
Works Automatically	Requires No Attention

OVER 150 MACHINES SOLD AND IN USE

Wells Undulating Knot and Sliver Screen

Will bear closest investigation from every angle. It separates knots and slivers from all kinds of pulp efficiently, continuously, automatically with negligible cost for operation and upkeep. Simple but rigid construction. Only best materials used. Operation in plain view.

40 TONS DAILY CAPACITY, STANDARD SIZE. WRITE FOR BLUEPRINT AND FURTHER INFORMATION

PULP AND PAPER MILL MACHINERY
GLENS FALLS MACHINE WORKS

GLENS FALLS, NEW YORK

OUR LINE IS MANUFACTURED IN CANADA BY

THE NORTHERN FOUNDRY & MACHINE CO., LTD., SAULT STE. MARIE, ONT.

Pacific Coast News

July 1, 1924.

Powell River to Build New Wharf

The Powell River Mills at Powell River, British Columbia, have contracted for a new wharf and additions to existing dam and headgate works. The new wharf which will be located some 200 feet south of and parallel to the existing dock, will provide for two 450 foot berths, one on either side, and a 130-foot berth on the outer end. The pier itself—which is of wooden construction—will be carried on creosoted piling and will include warehouse capacity for some 3,000 tons of paper. Careful consideration has been given to the providing of proper facilities for the handling of paper and the new sunken track system, together with Barlow elevators. Of the two main berths, one is to be dredged for thirty feet of water and the other for thirty-two feet of water at mean low tide, some 50,000 yards of material requiring to be moved for this purpose. Some of this material will be used in the building of a stabilizing fill upon which the pier will be constructed and including provision for later extension.

The alterations to the present dam are being carried out with a view to providing the additional lake storage necessary in connection with the new power development. The present dam crest is for the most part at an elevation of 265 feet, a set of flashboards providing for maximum storage at elevation 270 and flood water at 275. The existing solid crest will be raised to elevation 272 with piers extending to 284, from which will be carried 19 steel frame Taintor gates. By this means, the maximum storage level will be raised to elevation 284, with top abutments and extreme floor level at elevation 286. The Taintor gates will provide a storm control discharge capacity of some 90,000 cubic feet per second. Existing forebay and headgates will be worked over to meet the increased pressure conditions. Some 16,000 yards of concrete will be required in the carrying out of this work, in addition to which it will be necessary to construct a core wall, approximately 400 feet long, which will tie the present east wing of the dam into solid rock and thereby prevent possible leakage through the gravel bank which might otherwise develop as a result of the increased pressure. With the completion of this work, sufficient water will be available for use in connection with the new 20,000 H. P. installation at present contemplated under the general plant extension scheme. The company plans to complete the wharf by the end of September and of the dam by the close of October.

Contract for the work has been given to Armstrong, Morrison & Company. The contractors at this writing have completed erection of their camp and office buildings and a great deal of preparatory work, including clearing of sites, unloading of machinery and equipment has been accomplished. The old headgates of the dam have been removed and stored temporarily along the east bank of the canal and the three new gates for No. 4 penstock have already been made and are now in place. The new gates for the existing three penstocks are nearly finished. The work of removing the old thimble for No. 4 penstock and installing a new one of larger diameter, in order to take care of the future installation of an additional penstock has now ben completed.

Excavation on the east and west sides of the forebay is practically finished, concrete forms constructed, and the pouring of concrete is now under way. The order for the steel sheet piling to be used in the construction of the 400-foot long core wall has been placed, and the piling is at present enroute from the mills in the East. Delivery is expected by August 1 at which time the construction work on this wall will be proceeded with.

Dredging operations in connection with the construction of the new wharf having been taken out to date, part of which has been used toward the building of the stabilizing fill upon which the new pier will be constructed. Approximately 30.000 cubic yards remain to be excavated. Some 130 creosoted piles have been driven, but over 2,000 remain. The piles will support the new warehouse.

From Prince Rupert, B. C., comes word that announcement of an actual start on the construction of a big pulp and paper mill is expected in a few days. The statement comes from J. D. McArthur of Winnipeg who has sponsored this project for the past eight years. The Manitoba Pulp & Paper Company has been formed with an authorized capital of $5.000.-000. Immediate disbursement of the firm in the way of construction and plant is placed at $3,600,000. The mill will be located at St. Boniface.

Starch

A SIMPLE change in the manufacturing process often results in a pronounced decrease in cost of production.

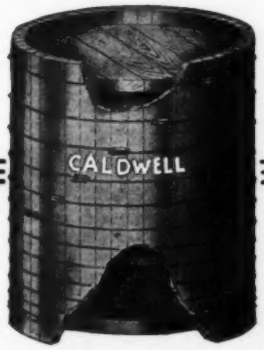
Paper Mills use Starch for sizing to produce better and stronger sheets with lower cost of manufacture.

Our SPECIAL PAPER brand for beater-sizing increases strength of sheet and gives improved finish.

Our FOX HEAD brand for top-sizing is more economical than all glue-size—gives perfect satisfaction.

Corn Products Refining Company
17 Battery Place New York

Starch



There is Only One Way

to make paper mill tanks—the Caldwell way. The engineers of the W. E. Caldwell Co. have spent years in discovering it. Caldwell Heavy Yellow Pine Acid Tanks are scientifically constructed according to the strictest engineering principles. Their extreme thickness assures long life; their construction absolutely prevents bulging and breaking. The Caldwell is the only tank for storing acids and for holding stock in solution.

A reputation for the highest grade of products and an experience of over 30 years stands back of Caldwell service.

Send for Catalog

W. E. CALDWELL CO.
Incorporated
2570 Brook Street,
Louisville, Ky.

Caldwell TANKS AND TOWERS

50% SAVING VARIABLE SPEED ENGINES

THE MOST WASTEFUL UNIT IN YOUR PLANT FOR THE FIRST TIME PUT ON A BASIS OF MAXIMUM EFFICIENCY BY THE

Chandler & Taylor Prosser High Economy Engine

CHANDLER & TAYLOR COMPANY

INDIANAPOLIS, INDIANA

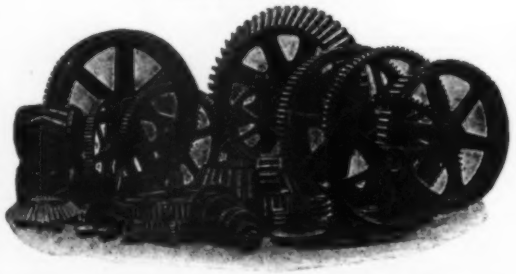
Why POOLE Gears ARE ACCURATE

Poole Gears are machine moulded, one tooth at a time, accurately spaced. Instead of using a full pattern, the shape of the tooth is accurately determined and the tooth block is made; this is placed in the moulding machine and a dividing mechanism spaces the teeth so as to produce a gear the pitch of which is practically as accurate as that of a cut gear.

We have a stock of 16,000 patterns from which to make moulded gears by this process. Gears of extreme accuracy, all types and sizes, from 1" to 65' diameter. Let us tell you more about them.

Poole Engineering & Machine Co.

BALTIMORE, MD.



The HART BEARING

Hart Bearings are most efficient load carriers. No shut down from bearing failure when HART Roller bearings are used. Many are already using them —WHY NOT YOU?

Write for Descriptive Circular

The Orange Bearing Company

ORANGE, N. J.

WE-FU-GO AND SCAIFE WATER

PURIFICATION SYSTEMS
SOFTENING & FILTRATION
FOR BOILER FEED AND
ALL INDUSTRIAL USES

WM. B. SCAIFE & SONS CO., PITTSBURGH, PA.

At Longview, Wash., the Pacific Strawboard and Paper Company has started building operations on a fifteen acre tract it recently purchased. Seven buildings of concrete, tile and glass, will be erected immediately at a cost of $60,000 and machinery will be installed at a cost of $100,000, according to Charles F. Schaub, president of the company. The concern owns the old Huntington homestead on the Cowlitz river. The plant is expected to begin operation in October and will employ at the start about fifty men.

H. H. Matheson, safety first exponent, was a recent visitor to the Powell River Mills at Powell River, British Columbia. During his stay he carried on a vigorous campaign in behalf of safety first. This included talks to the children in school and special educational talks at the local theatre which were illustrated. Matheson declared that Powell River is 99 percent fine on safety first appliances in the mill.

The Schumacher Wall Board Co., American Bank Bldg., San Francisco, Calif., manufacturer of composition board products, has acquired a tract of about 5 acres of land in Oakland, Calif., near the line of the Southern Pacific R. R., and contemplates the early preparation of plans for a new plant. It will consist of a number of buildings, with cost estimated in excess of $75,000, including equipment.

The Alpine Paper Manufacturing Company of Salem, Ore., has been incorporated for $600,000. F. E. Thompson, William T. Alpine and J. E. McGinniss are the incorporators. The company will manufacture, produce and deal in all kinds of paper, cardboard, etc.

The Pacific Paper Products Company has been incorporated at Seattle for fifty years. The capital stock is $140,000 and the incorporators are A. F. McIntosh, William O'Brien and Hugh McDonald.

The Alpine Paper Company is considering the construction of a $450,000 paper mill at Coquille, Ore.

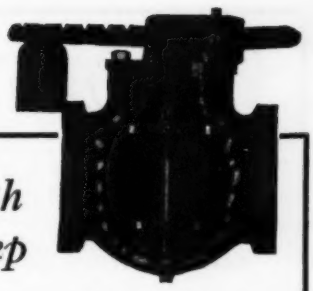
Foreign Correspondence

Paper Production in the Ruhr Zone

The Fair at Cologne which took place this spring and was successful, contained a paper making group in which the largest space was devoted to the occupied zone in which Cologne is situated. Rhineland and Westphalia comprise 30 percent of the Prussian paper mills or 15 percent of those in the empire. The province of Silesia comes quite near to the above zone, making up 30 percent of the whole German paper industry. The largest is that of Saxony, surpassing the three above provinces taken together.

These four areas are much favored by nature, they abound in vast forests, cheap fuel, clear, pure water, cheap freight, good roads and heavy local consumption. These districts are highly industrial centers in other lines too, thus the railway net is quite dense. The old culture-road at the Rhine has had great influence upon the development of the paper trade, thus on both banks of the famous river there are many paper mills. The latter in the Ruhr and Rhine district use 80,000 horsepower from steam, 20,000 H. P. from water and 3,000 H. P. electric energy. About 150 steam engines are employed, as many boilers and 100 turbines, the last being mostly of the Francis type. There are also 200 machines for various purposes and 500 paper and rag engines. This gives us a hint as regards the many workmen engaged and capital invested.

Here all kinds of paper are made, but most makers have specialized in a certain direction. The Rhine province is most noted for the finer grades, and an excellent business was done with the rest of the empire. In spite of incredible difficulties the manufacturers have done marvelous things. As the providing of the rest of Germany was so much handicapped by the occupation by the French, the Rhenish firms fostered the export. During the three years after the war the Rhenish firms did as much as 12 percent of the entire German paper export, as regards raw paper even 15 percent. Twenty to 60 percent less was made in 1923 than in 1922. The occupation caused higher wages, freight and custom fees, much of it going into French pockets. Thus the manufacturing expenses are 15 percent higher than in other parts of the empire. In the meantime the wages have reached the level of 1913, while in the rest of Germany they are only three-quarters or less of the pre-war standard.



Cuts the high cost of upkeep

THERE are cheaper valves—but are they cheaper in the long run when you stop to consider the delay caused by shutdowns for repairs—the mechanic's time, the repair parts, and the inefficient operation of those valves?

The Davis Back Pressure Valve cuts these costs by reason of its superior design and manufacture. Its record backs it up.

It positively will not stick. It is absolutely noiseless. Its simple and unique construction assures reliable, consistent performance indefinitely.

The Davis Catalog, really a regulator handbook, is sent free to those engineers applying to the G. M. Davis Regulator Company, 414 Milwaukee Ave., Chicago.

DAVIS VALVE
STEAM SAVERS SINCE 1875
SPECIALTIES

PI 7-F-RTG

The Jenkins Diamond

The Jenkins Diamond trade-mark, cast on all Jenkins Valves, means, among other things, that the valves which it identifies, are genuine Jenkins Valves, the only valves guaranteed to give genuine Jenkins service.

It means further that the valves so marked have a standing and prestige for giving many years of good service recognized by valve users everywhere.

Jenkins Valves are unsurpassed for the several purposes for which they are recommended. In order to be sure of getting genuine Jenkins service, use genuine Jenkins valves only. At supply houses everywhere.

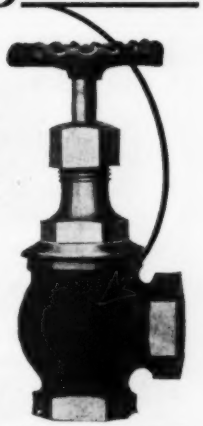


Fig. 108, Screwed, Genuine Jenkins Standard Bronze Angle Valve, trademarked with the Jenkins diamond.

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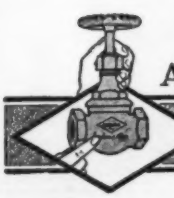
133 North Seventh Street....Philadelphia, Pa.
646 Washington Boulevard.....Chicago, Ill.



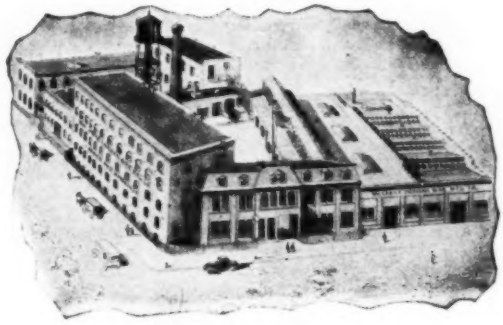
Always marked with the "Diamond"
Jenkins Valves
SINCE 1864

Right in the Heart of things

Our factory is situated in an advantageous site in Brooklyn for shipping to all parts of the country.

A big, modern plant, its present condition is the outgrowth of a long and successful experience in wire making. This business was established in 1848, and has grown larger and better every day, mainly because of the quality of our product, but in part due also to our ideals of what constitutes the meaning of the word SERVICE.

Our looms are of the most modern design and our facilities are ample for producing the highest quality brass or phosphor bronze FOURDRINIER WIRE and WIRE CLOTH.
Give us a chance to quote you.



OUR PLANT IN BROOKLYN, N. Y.

The
Wm. Cabble
Excelsior Wire Mfg. Co.
80-88 Ainslie St.
Brooklyn, N. Y.

What Morehead Is Doing for Your Neighbor

NOT far from you there is a Morehead Back-to-Boiler System draining the condensation from all steam heated surfaces and returning it to the boilers as feed water at temperatures up to 300 degrees F.

It is giving them hotter surfaces, greater output and bigger profits.

It is saving fuel.

A Morehead System will accomplish the same for you. If condensation clogs and cools your heating surfaces—if your production is low and coal bills too high, we can show you the remedy. Profit from the experience of your neighbor. Write for information.

Morehead
"BACK-TO-BOILER-SYSTEM"
POSITIVELY DRAINS ALL TYPES OF STEAM APPARATUS. DELIVERS CONDENSATION AND FEED WATER TO BOILERS UNDER ALL CONDITIONS AT MAXIMUM TEMPERATURE

129

Service to Exporters of Paper

The Commercial Intelligence Division of the Department of Commerce has just announced a series of trade lists of interest to exporters of paper and paper products. These lists contain the names of importers and dealers of paper in foreign countries and may be had without charge from any of the district or co-operative offices of the Bureau of Foreign and Domestic Commerce or from Washington.

Supplementing periodic compilation of trade lists for all branches of American industry, the division is equipped to furnish sales information on more than 100,000 foreign firms and individuals with which Americans do business. As this list contains much detailed data on foreign dealers in paper and paper products, American exporters of this commodity are invited to use the service.

Paper and Paper Goods

Importers and Dealers—

Bolivia	LA 11019-B
Brazil	LA 12038-A
Chile	LA 13007-B
China	FE 13020-B
Costa Rica	LA 23018-A
Egypt	NE 14044
Greece	NE 5033
Panama	LA 28017-A
Peru	LA 20035
Venezuela	LA 22014-A

Paper Mills

Argentina	LA 10114
Brazil	LA 12092
China	FE 13079
Mexico	LA 30093
Uruguay	LA 21027
Venezuela	LA 22028

Trade lists should be ordered by title and file number.

Forestry in Pennsylvania

How the Pennsylvania forests have been depleted until the state now imports 80 percent of the lumber used, was told to the Engineers' Club of Philadelphia recently by Dr. Hugh P. Baker, executive secretary of the American Paper and Pulp Association, but formerly in charge of the department of forestry at Penn State College.

"The paper industry," he said, "is deeply interested in forestry, because the future of the industry is dependent upon the right practice of forestry in the country. It is because of this that the many foresters employed in the paper industry are proud of the fact that their industry has taken the leadership among all the industries in the campaign for the promotion of forestry. Pennsylvania has many paper mills, and some of its paper companies are doing aggressive work along forestry lines.

"Forestry is now changing from the sentimental to the economic stage, for it is now possible to grow trees for profit.

"Some facts as to Pennsylvania may be of interest. In 1890 Pennsylvania ranked first among the states in lumber production, in 1899 ranked fourth, and produced two and a third billion feet of timber. In 1920 the state ranked twentieth, with a production of half a billion feet.

"Out of the state's 28,000,000 acres, 10,000,000 only are under the plow. The state has 250,000 acres of virgin timber, and 4,705,000 acres of merchantable second growth, 3,000,000 acres in small second growth, and 4,000,000 not restocking with timber. The idle acre is as wasteful as an idle man, and these millions of acres should all be helping to produce the tree crop which would help pay the cost of government."

Science in the Use of Nails

The old proverb "a stitch in time saves nine" applies as pointedly to nails as to needles, says John F. Keeley, packing expert of the Department of Commerce, who is conducting, in co-operation with shipping industries, an exhaustive investigation of means of prevention of loss of goods in transit. That a timely nail is worth more than its weight in gold has been proved by tests of packing cases at the United States Forest Products Laboratory, which show that the majority of failures of ordinary boxes is due not to the lumber of which the box is made but to improper nailing. In many cases a better box can be constructed with thinner material by the use of a few more nails in the right places, making a material saving in initial cost of packing as well as subsequent saving through less loss in the box car and on the concrete platform.

In making a packing case the nailer must use his own head as well as the nails, declares Mr. Keeley. The proper nailing

FOR SALE

One large type Marshall refining Jordan engine, used very little. EDDY PAPER CORP., Three Rivers, Mich.

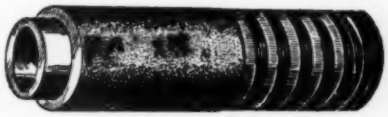
Paper and Pulp Knife Grinders
using
Sectional Wheel, Cup Wheel or Straight Wheel
Catalog on Request
BRIDGEPORT SAFETY EMERY WHEEL COMPANY
102 Knowlton Street, Bridgeport, Conn.

Quality Guaranteed

The Smallwood-Low Stone Co.
Lisbon, Ohio
U. S. A.

Standard Wood Pipe

"The Pipe that Stands the Test"



More Durable and Economical

Used extensively by the Paper Industry for conveying paper stock and acids. Especially adapted for conveying sulphite and ground wood.

Has greater carrying capacity than iron pipe, costs less to install and much less liable to freeze than any other type pipe.

Write for catalogue and prices

Standard Wood Pipe Co.
Williamsport, Penna., U. S. A.

FOR SALE

Two (2) Fitchburg Steam Engines 40 H. P., 125 lbs. steam pressure; 20 lbs. back pressure; 70 to 125 R. P. M. Length of engine, 12'6"; width of engine, 6'8". These engines can be direct connected or a belt drive and are in A-1 condition.

Three (3) Noble & Wood 1,000 lbs. capacity Beating Engines; wood tub; 48 x 48" roll; 72 x 16½" pulley. These Beaters are in good condition.

Two (2) 63" Smith & Winchester Undercut Paper Cutters.

Address Box 62, Paper Industry.

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of boxes demands the use of the right kind of nails, the right size and the right number. The size and thickness of nails are determined by species of wood and thickness of boards. The woods commonly used for box-making purposes have been divided by the Forests Products Laboratory into four classes, according to their strength and their ability to take and hold nails with white pine leading group one, southern yellow pine leading group 2, red gum leading group three and hard maple leading group four. The number and size of nails needed to make strong boxes out of the various woods of different thicknesses have been reduced to regular rules and charted. Charts by which anybody who can read may know just what nails to use and how many and where for every common kind of box wood have been prepared by the Commerce Department and may be had by anybody who will write to the department and ask for it. This chart pasted up in the shipping room and used means money for the user.

"Spare the nail and spoil the box," is Mr. Keeley's motto. The number of nails specified for different woods in the chart is not the maximum. Increasing the number of nails 50 percent will increase the strength of the box 100 percent on the average. The danger of splits from driving two or three times the number of specified nails is negligible. Nails are cheaper than wood. They not only serve to hold parts of a box together, but they provide rigidity. Splitting is more often caused by too large than by too many nails. With the Commerce Department chart showing the size and minimum number of nails necessary, the boxmaker will not go far wrong.

How to Stabilize Business

The following are some extracts from an address of S. H. Libby at the annual meeting of the Electric Hoist Manufacturers' Association:

"In general, care should be exercised to follow the well established principle of 'retrenchment in boom times and expansion in slump times.'

"In the past evidence of the development of a boom was the signal for a stampede and expansion to the limit of resources, then upon the recession of the wave the stampede developed in the reverse direction, with the result that the crests became higher and the valleys deeper, merely because sober business lost its head and the disease was catching.

"If we can develop enough nerve to withhold expansion of manufacturing facilities to the point that a study of conditions over a course of years tells us is normal, and then during dull times manufacture standard apparatus for stock, regardless of inventory value, we will go far toward ironing out the extremely uneven crests and valleys such as have presented themselves periodically in the past.

"It is cheaper to manufacture goods during slack times than during boom times, and the cost of warehouse for storing stock against increased demand is cheaper than manufacturing facilities that are adequate to care for the abnormal boom peaks.

"My personal opinion is that much good would result if the bankers would reverse their attitude of the past and contract credit during boom times, and extend it during slump times, which of itself would tend to reduce the peaks and valleys.

"That would be a move toward stabilization of business and incidentally toward stabilization of employment."

New Man Cooling Fan

A man cooling fan with improvements in design that give it even greater sturdiness and capacity than those that are now increasing production and bringing relief to overheated men in hundreds of steel mills, foundries, forges and other plants where heat treating processes are used, has recently been brought out by the American Blower Co., of Detroit. The new model man cooling fans are built in two sizes, wheels 21¼" and 37¼" in diameter, operating at 1,725 and 1,120 r.p.m., requiring 1 and 4 H.P., respectively.

The man cooling fan resembles a giant size desk fan, and develops a breeze that can be felt over a wide area. The slow speed at which the motor operates and the sturdiness with which the fan is constructed assure long life for the outfit.

In most industrial plants the need for such a ventilating unit is vital. Heat saps energy—workers become careless—and accidents occur more frequently. Inaccurate work results and material must be rejected because of imperfections. Men seek pleasanter work and labor turn-over is consequently high. It is a recognized fact that production in industrial "hot spots" is seriously hampered by the heat, no matter what the outside weather conditions.

Man cooling fans are the proved method for ventilating such places. Like a desk fan, they can be so placed that they

Dependable Used Equipment

3—Dorr re-action tanks, 10'x10', complete with agitators and steam coils.

500—Steel storage tanks, 119 to 28,200 gallons, ⅜" to ⅝" plates. Write for Bulletin No. 7.

1—40 KW Sprague Electric Works direct current generator, 120/125 volt, compound wound.

1—G. E. 75 K.W. motor driven exciter set, generator compound wound. Form A, Type RC-16, 600 Amp., 125 volts D.C., 1200 r.p.m.

125—Motors, ¼ to 150 h.p. Write for Bulletin No. 21, listing our complete stock of electrical equipment including condulets, motors, generators, lightning arrestors, etc.

17—New Roberts filter tubs, 17' dia. x 7' depth, capacity each 454 gallons.

65—Used tubs, same as above.

5—14" Class B Worthington double suction enclosed impeller (volute) centrifugal pumps, 16" suction, 14" discharge.

3—Allis-Chalmers 14" Type S Centrifugal pumps.

6—Allis-Chalmers 16" Type S Centrifugal pumps. Write for Bulletin No. 22, Waterworks Equipment.

1—Otis freight elevator, 3,000 lbs. capacity, 81 ft. travel, car 11'7"x7'11" and 12'9" under beam.

1—Otis freight elevator, 6,000 lbs. capacity, 36'2" travel, platform 10'x10'2".

31—Continental Iron Works welded steel digesters, capacity 1,300 cu. ft., pressure 110 lbs.

12—Kellogg hammer welded steel Autoclaves 300 lbs. working pressure. Tested to 1,000 lbs.

16—823 h.p. Babcock & Wilcox Stirling Water Tube Boilers, 200 lbs. pressure, Class M-30, complete with Westinghouse stokers, forced draft fans, Vulcan soot blowers and all accessories.

2—300 h.p. Heine boilers, 150 lbs. pressure, Murphy stokers and accessories.

10—Connersville 26"x36" horizontal top discharge gas blowers. Capacity 24.5 cu. ft. per revolution at 4.58 lbs. per sq. in. at 255 r.p.m.

6—18"x36" Allis-Chalmers heavy duty mill type Corliss engines.

2—15 and 26x20x24 Compound duplex Laidlaw compressors. Pressure 80 lbs. Capacity 2,570 cu. ft. at 150 r.p.m.

2—42x11½x50 hydro pneumatic accumulators, designed for 300 lbs. air service. Equipped with Watson Stillman automatic regulators.

3—8" 3-stage Alberger-Curtis steam turbine driven boiler feed pumps.

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Top and Bottom Wet Felts for board machines, with all the qualities requisite to insure long life and continuous production.

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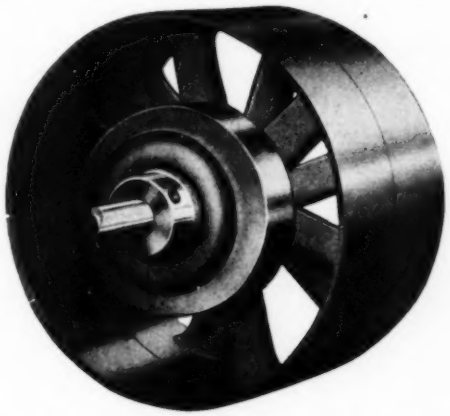
will blow a brisk current of air in any desired direction. Production per man increases and the men are more contented with their work. Longer shifts can be used and a consequent reduction in production costs is effected. More and steadier production is possible with fewer men.

A Perfect Oiling Device

The "Gast" represents a new principle of oiling loose pulleys, idlers and the like.

While in the former case lubrication is a comparatively simple matter, as there is no difficulty in arranging for gravity feed or automatic lubrication, such a ring oiling like the latter, on the other hand, offers a very difficult problem to solve because as the bushing, that is—the hub of the loose pulley revolves when it needs lubrication the most, the lubricant quite naturally partakes of this rotary motion and



therefore, being acted upon by the centrifugal force, is whizzed away leaving the loose pulley bushing so dry that wear and tear and trouble are inevitable.

The design of the "Gast," by the Standard Pressed Steel Co., of Jenkintown, Pa., is the result of recognizing this fundamental principle, and its success is due to working with, instead of against nature.

The "Gast" comprises two main parts, viz., the bushing proper, and the oil chamber as can be seen from the cut, but unlike any other loose pulley bushing, these two parts while interlocked so they cannot be taken apart are free to revolve in relation to each other—in other words—the bushing can turn while the oil chamber remains stationary, and consequently whatever lubricant is contained in the latter is not acted upon by the centrifugal force but on the contrary remains perfectly still.

The bushing extends within the oil chamber to its full width forming a neck in which there is a rectangular opening about one-third of the circumference and from this neck is suspended an endless chain dipping into the oil.

Again referring to the cut, it will be seen that the oil chamber has a hub provided with a set screw, also a circular opening in the front.

After the "Gast" has been pressed into the hub of the loose pulley and mounted on the shaft, in proper relation to the tight pulley the set screw through the hub of the oil chamber is screwed up, thereby fastening the latter to the shaft. Oil is now poured in through the circular opening until it is seen to rise say within ⅛ inch of the point of overflow and the "Gast" is now ready for work.

As soon as the belt starts the loose pulley turning the bushing part of the "Gast" turns with it when the chain suspended from the neck within the oil chamber begins to operate by carrying up a steady stream of oil, part of which is in turn deposited on the stationary shaft, through the rectangular opening, when the oil quite naturally finds it way in between the shaft and the bore of the bushing or just where it is wanted, and as this happens once in every revolution the lubrication is directly proportional to the need and explains why the "Gast" gives such excellent results, especially under hard service.

Means are of course provided for returning the oil, after it has passed through the bushing, to the oil chamber, and as the "Gast" does not leak one filling will last for a very long period nevertheless it is well to oil once every three months or so.

The hub of the oil chamber takes the end thrust of the bushing and on account of this no extra set collar is necessary.

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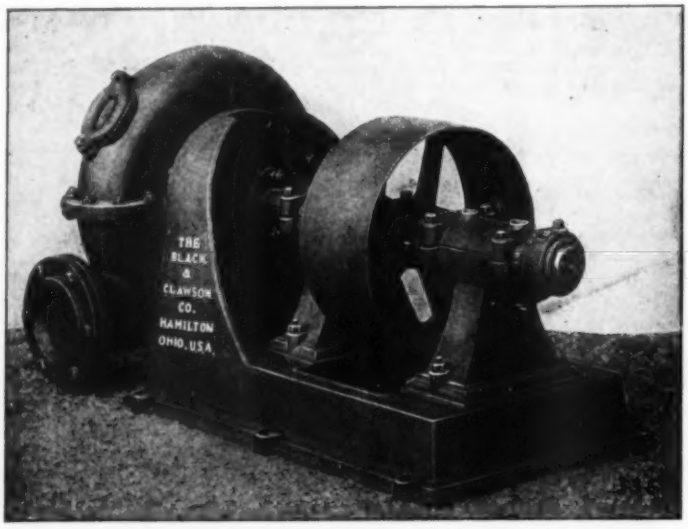

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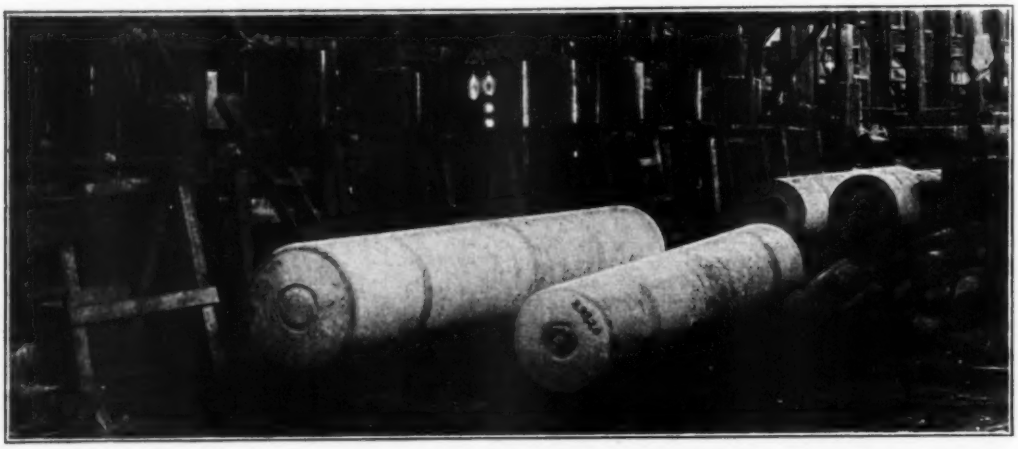

If your Paper Machines are not equipped with Press Rolls of BARRE GRANITE you are not getting the results that you should get, for it is a recognized fact that granite rolls are much superior to any others and Barre Granite the best of all. Let us tell you about them.

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Technical Developments in the Paper Industry

Domestic and Foreign

The following abstracts are of the latest developments found in the foreign press and the domestic and foreign patent offices. Photostats and translations of complete articles and patents can be obtained at cost price.

Action of Cellulose Fiber on Aluminum Hydroxide

DR. CARL G. SCHWALBE has written a very important article on the adsorption of aluminum hydroxide from aluminum sulphate solution used in the sizing of paper by the cellulose fibers. The author ascribes the contradictions that occur in the literature on this subject, due to the fact that the adsorptive powers of fibers is controlled by a large number of variable factors, such as the duration and the temperature of steeping, concentration of the solution, in which the fiber is steeped, and especially the previous history of the fiber as regards age, temperature, period of drying, degree of swelling or hydration, and content of incrustating residues, such as lignin, or decomposition products, such as hydrocellulose and oxycellulose. All these factors have an important effect on the nature of the surface of the fiber.

Experiments were made with the dry fibers steeped in a solution of sulphate of alumina and the conclusion was reached that no appreciable adsorption took place under these conditions. The contradictory results which are obtained in experiments on the adsorptive power of wood cellulose sized with an emulsion of rosin in sodium resinate solution are ascribed to the varying degrees of comminution obtained in beating the stock and the difficulty of reproducing the conditions obtaining in a beater. The sized pulp in the beater is capable of adsorbing much greater quantities of aluminum hydroxide than the undamaged fibers, and the adsorptive power increases with the fineness of comminution up to a certain point and thereafter remains approximately constant. The swelling or hydration of wood cellulose fibers exerts a large influence on their power of adsorbing aluminum hydroxide. The number of factors which affect the adsorptive power of wood cellulose is even greater than in the case of cotton cellulose, owing to the varying quantities of pentosans and hexosans which may be present.

For further details on this very interesting and important article, the reader is referred to "Zeitschrift fuer angewandte Chemie," 1924, pages 125-8.

Purifying Pulp

THE wood is first ground up very finely and the resins contained in it are removed by treatment with fifty times its weight of a ten percent solution of sulphuric acid. Sodium chlorate and oxalic acid are added. Sufficient chlorate is employed to generate enough chlorine dioxide to remove all the lignin present. The process can also be applied to purifying cellulose from lignin. The results are as good as, and the process is more easily applied than when the chlorine dioxide is generated outside the vessel containing the cellulose. The action of the gas is controlled by regulating the temperature of the mixture.

Testing Chemical Pulps for Strength

AN INVESTIGATION was made into the methods in vogue for the testing of the strength of chemical wood pulp under the auspices of the Technical Section of the Papermakers' Association of Great Britain. The results are published in the "Proceedings of the Technical Section of the Papermakers' Association," volume 4, pages 185-204.

These results indicate that the figures obtained by Sindall are correct, but it is considered that the use of hand-made paper sheets for testing purposes is undesirable, and that a standard laboratory method of making sheets of paper should be adopted. The Wilen sheet-making apparatus should meet all requirements. The apparatus for disintegrating and beating the samples should break up the pulp without appreciably hydrating it and be capable of imitating the beating action, at consistencies approximating those used on a large scale, that is five to six percent under conditions readily repeated by different operators.

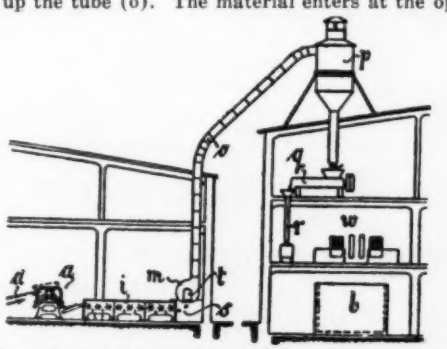
A laboratory method for pressing the test sheets under a constant and uniform pressure should be worked out, and all sheets should be air-dried. Strength tests on a strong sulphite pulp, imported wet (containing 40 percent moisture), and on the same pulp after air-drying and again after cylinder-drying show that, in both the unbeaten and beaten state, the undried pulp is 50 to 100 percent stronger than either the air-dried or cylinder-dried pulp, the latter being beaten the weakest. Additional beating of the cylinder-dried pulp, however, brings up its strength equal to that of the air-dried pulp. Soaking dry pulp in water has little or no influence on the strength of the beaten or unbeaten sheets. Chemical pulp, therefore, should not be dried to a moisture content of less than ten percent, and the use of wet sulphite pulp has many real advantages particularly in the manufacture of newsprint.

Reworking Old Paper

THE figure illustrates an arrangement which has been successfully used for the reworking of old paper, and similar waste materials for manufacture into paper stock.

The old paper enters the plant at the left. After being removed from the bins, not shown on the diagram, it is placed on the raveling conveyor (d) which carries it directly to the cutting machine (a). Foreign substances of large mass are removed while the paper stock is on the conveyor. From the cutter the material passes on to another traveling conveyor, which carries it directly to a purifying machine (i). This machine consists of a number of rolls, arranged one after the other and provided with flays which beat up the stock and remove all the dust from it. The purpose of this treatment is to clean the stock as far as possible.

From this machine the stock is carried by a traveling belt (s) to a point where it is sucked up into the fan (t) which blows it up the tube (o). The material enters at the opening

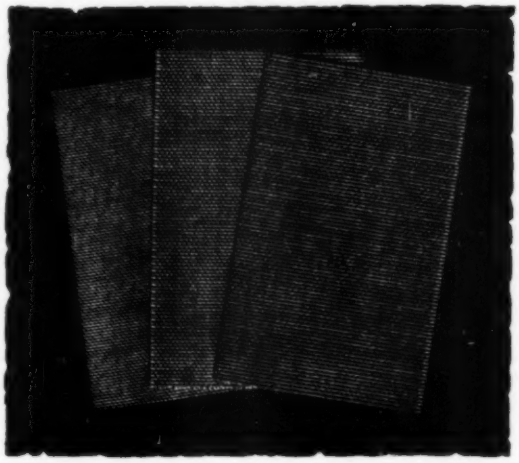


(t) which is closed with a screen. This can be regulated at will and similarly the distance between the traveling belt (s) and suction tube (t). By regulating the suction effect the heavier impurities, such as sand, bits of metal, glass, etc., that are mixed with the paper stock are removed by simply not being carried along with the current of paper stock passing up the tube (o). The stock passes into the device (p) which serves to remove the aid and then drops directly into the machine (q) where it is separated into fibers. The stock can now be carried to the next lower floor of the building by means of the tube (r) and can be beat in beaters or edge runner mills, shown at (w). It finally drops into the storage box (b).

Properties of Wood Used for Making Pulp

IT IS known that wood is purchased on the volumetric basis, while pulp is bought and sold on the weight basis. It is therefore important to have an absolutely exact method for determining the relation between the volume of the crude

Earning Power!



WHEN you purchase a Tyler Fourdrinier Wire, you are making an investment for profit just as truly as when you purchase U. S. Government Bonds.

Its longer life increases the output and earning power of your Fourdrinier Machine—

Its accurate, uniform mesh produces paper of uniform strength, texture, and surface—

Its firm weave and special composition wire protect it against premature wrinkles and slack edges—

Its unvarying dependability aid you in building up a reputation for paper of unvarying quality.

Lastly, it makes your immense investment in equipment, buildings, power, and men, show a larger profit return—and that, after all, is what your business is organized for. Tyler Fourdrinier Wires are woven in all widths up to and including 250 inches.

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wood and its content of fibrous substance. This relation varies in accordance with the nature of the wood, its origin, its content of water, etc. The numerous experiments, which have been made up to the present time along these lines, have not resulted in the development of a method which has been generally applied. R. Sieber, the author of the article which appeared in the "Svensk. Pappers. Tidn.," volume 26, pages 322-6, 361-2, worked on this problem and discusses therein the results of the tests that he himself made.

His tests were made on a Swedish wood of good quality, after the bark had been removed. The drying of the samples containing different percentages of moisture afforded information regarding the volume and the specific weight. Graphs and formulae were developed from the results obtained in this manner.

The specific weight of absolutely dry wood was found to be between 0.425 and 0.450. The author also shows how it is possible to elaborate the graphs which show that when the wood is exposed to air and its bark is removed, it dries progressively and attains a content of water after two years' exposure that is just about constant for all time. The author also shows in what proportions it is possible to obtain a higher yield of pulp, more than ten percent, by treating moist wood in the place of dry wood.

Feeding Pulp Beaters

THE figures given below show an arrangement which has been patented for supplying pulp from stock to beaters. The pulp is first cut into strips by the knives 2 and 3, seen in Figure 1, and the strips then fall to the table (b). The table

FIG.1.

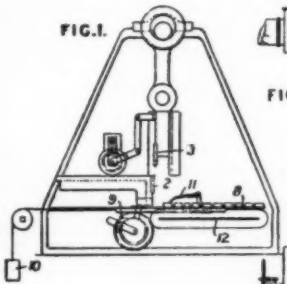


FIG.3.

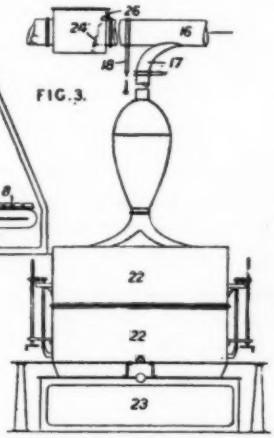
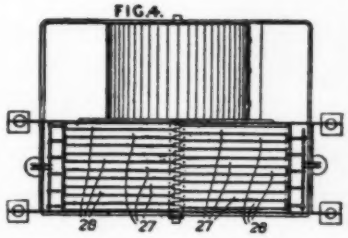


FIG.4.



is fed forward by a ratchet arrangement (9) and at the end of its travel is returned to its initial position by a weight (10), the strips being swept by a pivoted arm (11) on to a conveyor (12) and fed end-on to a similar cutter. The pieces that are produced in this manner are delivered by a blower to a main pipe (16), seen in Figure 3. From this pipe they may be fed by suitable valves (18), to one or another of the hoppers (22) of a series of beaters (23). The hoppers (22) comprise fixed rods (27), seen in Figure 4, and rods (28) hinged at the middle. The latter are connected to a frame which may be raised to allow the pieces to fall between the rods into the beater. A gate valve (24) opens when all the valves leading to the beaters are closed, thus admitting the pieces to a separate receptacle, which may be the one to which they are fed from the cutters. A whistle (26) provides an audible signal of the opening of the valves (24).

Pentosans in Wood Cellulose

AN ANALYTICAL method for the determination of the percentage of pentosans in wood cellulose is described in the "Journal of the Society of Chemical Industry," 1924, pages 35T to 36T. A brief review of this method is given below, as it has a certain interest for the paper chemist who is investigating the yield of furfural which can be obtained from these pentosans.

About 0.6 gram of the material is distilled with 12 per cent hydrochloric acid until the distillate ceases to give a coloration with aniline acetate, and the distillate is then diluted to half a liter with 12 per cent hydrochloric acid. 200 cubic centimeters of this solution are treated in a stoppered bottle with 25 cubic centimeters of tenth normal sodium bromide-bromate solution, and two hundred cubic centimeters of 12 per cent hydrochloric acid and 25 cubic centimeters of the bromate solution are placed in another bottle. The mixtures are kept in the dark for one hour, then treated with ten cubic centimeters of a ten per cent potassium iodide solution and titrated with tenth normal thiosulphate solution. The difference between the two titrations is a measure of the furfural present; one cubic centimeter of tenth normal thiosulphate is equal to 0.0024 grams of furfural.

Vulcanization of Rubber Latex Paper

THE rubber latex, either balata, hevea, gutta percha, is added directly to the pulp beater. In addition thereto there is added a certain proportion of alkaline sulphide and then a coagulant. The pulp is then delivered to the paper making machine and made into paper in the ordinary manner. The addition of the alkaline sulphide serves to vulcanize the rubber in the paper with the result that a much stronger paper is obtained.—United States Patent No. 1,497,146.

Destruction of Paper By Ink

THE destruction of paper by ink is one of the most interesting problems connected with the use of finished paper and its behavior in meeting the conditions demanded of it. The German paper-testing laboratory, which is conducted by Professor Herzberg, has done considerable work on this subject. Recently a report appeared in the German paper journal, "Der Papierfabrikant," 1924, pages 81 to 83, on this subject. It is stated therein that cases were observed where heavy ink lines had caused the paper to crumble between the fingers after several years' storage, and hence it was thought advisable to make a further investigation of the action of ferro-gallic inks on paper. Strips of paper were hence saturated with commercial ferro-gallic inks on both sides, then placed under a vacuum for a period of two hours to enable the ink to penetrate into the interior of the paper structure. These strips together with similar strips which had been treated with water, were placed in a safe and the mechanical characteristics were determined after four and twelve months.

The strips, which were steeped in water alone, showed in all cases a substantial increase in the extension at right angle to the machine direction; the influence on tensile strength and the folding test was variable. On the other hand, the strips steeped in ink had all deteriorated considerably, the extension and folding test being severely affected, the tensile strength only slightly. The deterioration increased with time of storage and in some cases the paper had become so brittle that it broke down at the first time of folding.

Removing Red Coloration of Sulphite Pulp

ONE of the great difficulties in the manufacture of sulphite pulp is the red coloration of the pulp to which various reasons have been assigned. The process which is patented in German Patent No. 388,213, relates to means of avoiding this phenomenon when the sulphite pulp is stored for any length of time. The method of preparing the pulp consists in treating the same in a beater with a small amount, approximately half a per cent, of an alkali or an alkaline earth persulphate in the presence of an acid, such as dilute sulphuric acid or of an acid salt, such as sulphate of alumina. The mixing is continued until the red color, which is developed in the first instance changes to a light gray. The cellulose which has been treated in this manner will not develop a red coloration when kept in storage.

Alteration of Sawdust and Chipped Wood During Storage

ELEMENTARY analyses of samples from heaps of sawdust which had been stored for one and two years showed that no perceptible difference in the composition of the dry substance had taken place, as compared with that of fresh sawdust, but the stored wood contained seventy to eighty percent of moisture. Nevertheless, sawdust taken from living trees and stored with access of air does undergo respiratory

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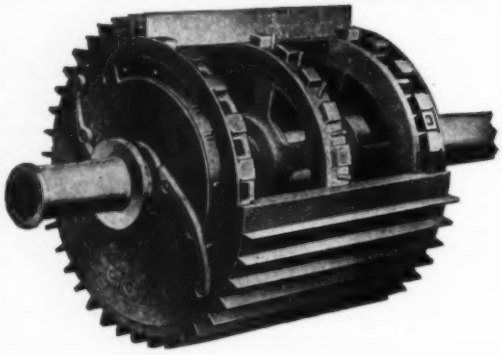

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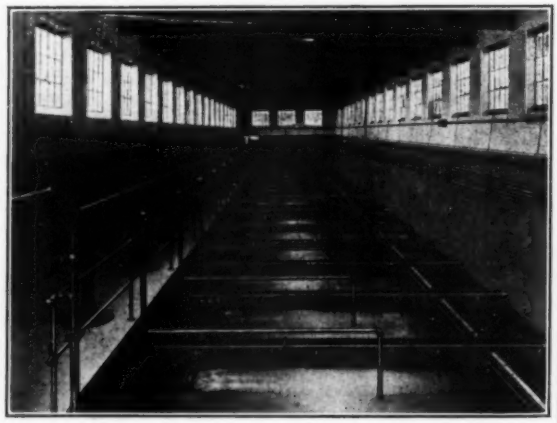

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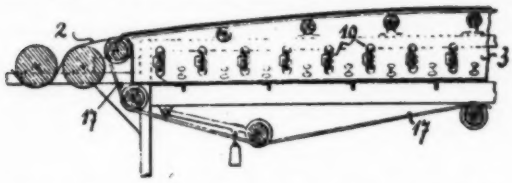
changes with the production of considerable quantities of carbon dioxide, and these changes would account for an increase of moisture in the heap. Samples of gas taken from such a heap which had lain for one year contained 3.5 and 6.5 percent by volume of carbon dioxide; moreover, the temperature at the middle of the heap was 30 degrees C, whereas at the surface it was only 2 degrees C. Samples of gas taken from the interior of growing trees have also shown from 5 to 6.2 percent by volume of carbon dioxide; the carbon dioxide is more abundant in the outer layers of the wood than in the interior.

For further details the reader is referred to "Papierfabrikant," 1924, vol. 22, pages 37 to 38.

Drier for Paper Webs

GERMAN patent No. 394,582 is concerned with a process and apparatus for drying a paper web, in which the web is carried on an endless belt and subjected to the drying action of artificial heat. The apparatus is seen in the figure.

According to the invention the upper span of the horizontal



carrying belt (17) carries the paper web and gives it a certain natural tension. Right under the belt there are arranged a series of electrical heating bodies, shown as (19) in the figure, with the result that the paper web is heated uniformly in its passage through the drying apparatus.

Sizing of Paper and Board

IN AN article printed in "The Wochenblatt duer Papierfabrikation," 1924, page 925, there is contained a description of a new sizing composition which the anonymous author claims to possess very striking properties. Just what the preparation is, is not explained, but it is said to be a water-white preparation which is sprayed on to the paper surface. The various advantages are claimed to be as follows:

1. The digestion of the size is done away with.
2. The use of alum or sulphate of alumina is eliminated.
3. There is no dusting on the machine in making printing papers.
4. A better and glossier paper is obtained.
5. The paper dries quicker and hence the production is increased.

Treating Waste Paper

IN UNITED STATES patent No. 1,482,825, which is assigned to A. D. Little, Inc., there is described an apparatus for removing ink and other impurities from paper. The apparatus comprises means for converting the paper, together with an alkaline detergent, into a hot pulp, a trough through which the pulp is conveyed and in which the action of the detergent is completed, and means for subsequently washing the pulp.

Waterproof Paper and Paper Board

IN GERMAN patent No. 394,771 there is described a process for manufacturing paper and paper board that are resistant to water. The process consists in impregnating the paper or the board in melted naphthalene, maintained at a high temperature, over 50 degrees C. In the place of naphthalene, any member of the naphthalene group may be employed for this purpose. The impregnating mixture may consist of sixty parts of sulphur and forty parts of naphthalene. The mixture is melted and the temperature is raised to 95 degrees C. The board, which is perfectly dry and which may be pressed or not before the impregnation process, is subjected to the action of the waterproofing composition for a period of five minutes. In order to make the impregnated board elastic, rubber, fats, resins and the like may be added to the mixture.

Making an Opaque Paper

IN THE manufacture of opaque paper, in which process fillers are used to secure opacity, there is always a certain loss sustained in filling material. The process, which is patented in British Patent No. 211,740, has for its purpose the reduction of this loss and the obtaining of an opaque paper which has a good gloss on both sides.

The process is conducted as follows. The filler, which is commonly china clay or some other similar substance, is added in an aqueous suspension to the wet paper web, either on top of, or behind the first suction box on the paper making machine. This depends on the thickness of the sheet and the number of suction boxes, the object being to suck the filler into and through the sheet but not out of it. In the patent specification there is described an apparatus for delivering a regular, adjustable stream of an aqueous suspension of the filler on to any desired part of the wet web. It is claimed that this method will reduce the loss in filling materials to ten per cent or even less.

Water Resistant Paper

PAPER impervious to water is prepared by impregnating paper with an aqueous solution containing not more than one percent of sulphate of alumina and up to four percent of formaldehyde, calculated on the weight of the paper. The concentration of the solution is such that the paper absorbs not more than ten percent of its weight. The paper is dried at or below a temperature of 100 degrees C, and is subsequently heated to a temperature below 100 degrees C, preferably between 85 and 60 degrees C, for a period depending on the kind of paper, the degree of impregnation, and the composition of the impregnating solution. Benzoic or salicylic acid, or other substances with antiseptic properties, may also be added to the impregnating solution.—British Patent 187,987.

Rubberized Paper

LOOSE or woven fibrous material, such as paper pulp, is incorporated with vulcanized latex, and the vulcanized rubber is deposited on the fibers by evaporation of the liquid or by adding a coagulant, such as alum or acetic acid, to the mixture. For example a paper composition comprising pulp containing 2.25 percent of the dry fiber, and ten percent of its own weight of rosin size is mixed with a quantity of the vulcanized latex, containing one percent of rubber, calculated on the weight of the dry fiber in the pulp. Sufficient alum is added to precipitate the size and to coagulate the latex, and the pulp is worked up to paper in the usual manner. Higher proportions of the latex may be employed if stronger paper is required.—British Patent No. 193,451.

Making Pulp with Chlorine Gas

THE following description and illustration indicates an application of the DeVains' process, which is patented by the author of the process.

As is known, this process is concerned with the treatment of raw cellulose or pulp by means of chlorine in a contra-flow process which is operated continuously. In the operation which is conducted under pressure, concentrated pulp is introduced at (d) (in the figure) into a chamber (a), which has stirrers (b'), and is discharged at (e). Chlorine gas is admitted at (g), the admission of gas and the discharge of pulp at (e) being adjusted by valves to maintain a level such as (h'), a window (c) being provided for the purpose.

FIG.1.

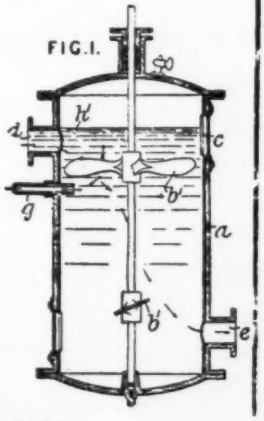
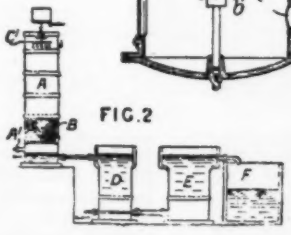


FIG.2



A number of chambers (a) may be arranged in series. In apparatus working at atmospheric pressure, the pulp is distributed at (C'), shown in figure 2, in a tower filled with packing (B), which may be smooth or corrugated cylinders, and chlorine is admitted at (A'). The chlorinated pulp passes to reaction towers (D), the dimensions of which are such as to permit the pulp to remain therein for ten minutes. The hydrochloric acid produced in the treated pulp is neutralized with lime in towers (E), and the neutral pulp collected in towers (F).

Slow Stuff

PROFESSOR SCHWALBE, the well-known German paper chemist, has been working on a process for the quick hydration of pulp in the beater with the formation of slow

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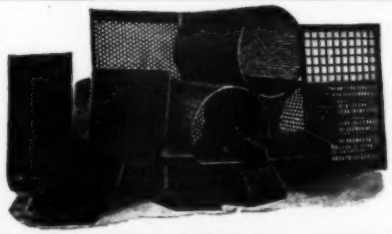

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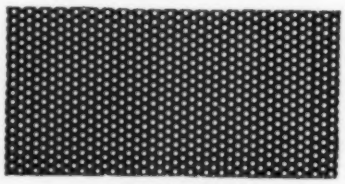

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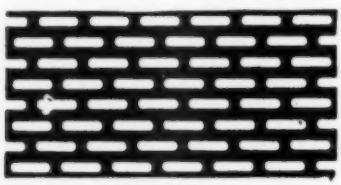

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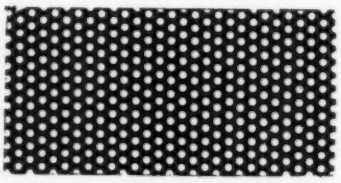

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stuff. He adds slime forming agents to the beater and in former work he used lactic acid in bronze beaters or carbonic acid gas. Naturally the technical details of carrying out such processes were extremely difficult and the investigator, not being in any way satisfied with what he had evolved, proceeded to make further experiments to determine whether or not it was possible to devise a simpler process for accomplishing the same results.

It is now reported in the March issue of "Der Papierfabrikant" that this is unnecessary. All that is required now is to add small quantities, say about one to three percent, of the dry weight of the stuff, of a preparation in the nature of a salt, which he names "mucigen" to the furnish when beating is commenced. A table of results is obtained in the laboratory when beating to 43 degrees of the Schopper-Riegler scale, with and without the addition of mucigen, showing that with this addition the beating is completed in 27 minutes, when, without this addition, it took forty minutes. At a higher degree of slowness the saving was at 32 against 77 minutes, so that one may expect to save half of the time ordinarily consumed in beating by this means.

Making Cooking Liquors for Paper Pulp

TWO patents, United States patents Nos. 1,488,829 and 1,488,830, have been issued to the Jessup and Moore Paper Co. on processes for the manufacture of cooking liquors for the manufacture of paper pulp.

In the first patent sodium carbonate is made to react with a mixture of lime and sulphur-containing salts. The latter are made by passing a mixture of calcium carbonate and sulphur through a lime kiln. The resulting mixture of caustic soda and sodium thiosulphate or sodium sulphite is used, after separating the insoluble matter, for preparing a cooking liquor for the manufacture of paper pulp. The black liquor from the digester may be evaporated and incinerated to recover sodium carbonate, and the calcium carbonate sludge may be mixed with sulphur and reconverted into lime and sulphur-containing calcium salts.

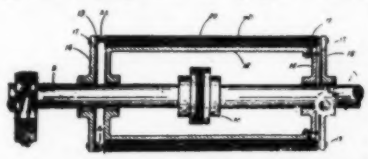
The second patent deals with a cooking liquor for the manufacture of paper pulp containing sodium hydroxide and sodium thiosulphate.

New Wet Press

AN ITEM in the Belgian paper journal, "Moniteur de la Papeterie," tells about a new wet press, which has recently been invented in Germany. The object of this new invention is to keep the roll dry. The surface of the press is perforated with little holes. A vacuum is provided by the aid of a pump, water being continually drawn through these holes. Thus the roll is always dry and the paper is not crushed.

Drying Rolls for Paper Mills

UNITED STATES patent No. 1,497,223 is concerned with the drying rolls on a paper making machine. In a paper making machine a series of rolls is provided over which the paper mash is fed for drying into paper. The rolls are provided with shafts whose electric conductivity is broken and whose surfaces are heated by the electric current. The rolls are insulated so that the rest of the machine is not electrified. The rolls can also be made in such a manner that some of them can be heated to different temperatures than the others.



Paper Bleacher

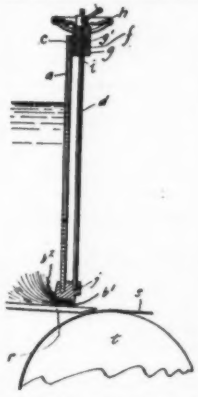
RECENTLY developed pulp bleacher consists of a tank in which there is a vertically arranged cylinder. This cylinder is suspended within the tank with its lower end at a certain distance from the floor of the tank. This cylinder is so arranged that it may be rotated and its contains a spiral conveyor or collector, which rotates in conjunction with the cylinder. This conveyor collects the material from the floor of the tank and conveys it upward and discharges at the upper end while bleaching is going on.

Coated Paper Making with Glycerine

THE paper web is manufactured with the aid of the addition of a certain proportion of glycerine, according to a process recently patented by The Champion Coated Paper Company in United States Patent No. 1,490,523. Approximately fourteen per cent of glycerine is added to the paper web, and then the paper is coated with an enamel-like coating which is adapted to retain the non-drying substance in the paper.

Paper Machine Slice

UNITED STATES patent No. 1,497,403 is concerned with a paper machine slice. The slice is supported on the deckle frames over the apron board of the machine. A bar is attached to the slice with which the lower edge of the slice can be moved in a vertical direction. This bar is made in substantial width and its lower face makes an angle with the horizontal which makes the area of the opening under the bar and over the apron board greater at the inlet side than at the outlet side of the opening.



Suction Box

IN A NEWLY patented suction box (French patent) there are arranged within the box one or more grooved or perforated rolls, which rotate at a peripheral velocity equal to the speed of the wire. The upper edges of the suction box extend quite close to the roll so that the wire is practically free from suction except when actually in contact with the roll. The roll may also be made to act as a guide roll.

New Papermaking Fiber

IT IS reported from Yucatan that a wild plant called "saexiu" which grows in great abundance has been subjected to examination as a possible source of raw material for paper making. It is said to be excellent for this purpose, although it does not possess any advantage at all as a textile fiber. The French are pursuing the matter.—"The World's Paper Trade Review."

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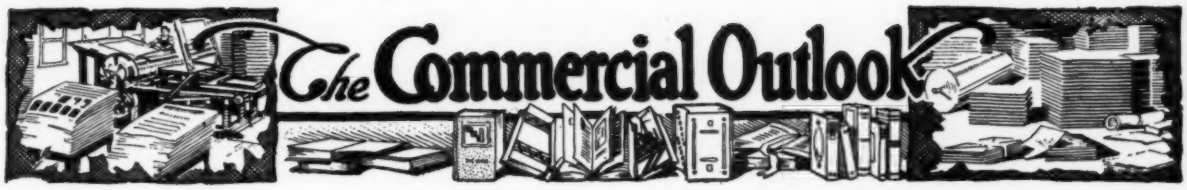

New York, July 1, 1924.

VARIOUS factors are contributing to a rather quiet market for paper. Current demand for most kinds of paper is of strictly routine character, consumers are buying only against direct requirements in a majority of cases, and, owing to the slowness of business generally, most users of paper are not in need of normal supplies. Politics, uncertainty regarding the future, aversion on the part of consumers to stock up, the unfavorable situation abroad, and other factors are at the bottom of the general quietude in business, and the summer season and the usual slowing down of commercial and manufacturing activity also have an effect, so that the paper industry is involved in the period of semi-depression along with the other basic industries of the country; in fact, probably a little more so since paper demand is so dependent on the condition of other industries.

At the same time, demand for paper, viewed in its entirety, is far from dull. Users of paper are buying in a more or less steady manner even though they are noticeably limiting the volume of their purchases. It is nothing out of the ordinary for consumers to let down in their buying of paper at this time of the year, rather it is a market condition which paper manufacturers and jobbers expect, only this year the summer reaction coming on top of several months of rather poor business is somewhat more accentuated than usual.

Paper mills in a majority of cases and in various parts of the country have found it necessary to curtail production. This is a good sign, good in the sense that manufacturers are gauging their output by the existing market and are not creating a surplus of supply which might have a very unfavorable effect on the market. Some mills which dispose of the bulk of their product on contract are operating at close to full capacity, but such instances are few, and reports indicate that producing operations have been put on a scale in keeping with that ordinarily observtd at this period of the year.

Despite the rather depressing conditions obtaining in recent weeks, it can be said that the outlook for the paper industry is promising. In fact, it can be said to be more than promising—it is decidedly bright. Nearly everyone in the business world anticipates and firmly expects better business in the fall. As soon as the political campaign is over business should go ahead with a rush. Conditions abroad appear to be improving at last, after a long wait, and it is felt that once political handicaps are removed in Europe business will progress rapidly there and the European people will look to America to supply them with large amounts of countless articles.

Furthermore, narrowing the matter down to the paper industry, it is an accepted fact that consumers and distributers of paper of practically every kind are carrying exceptionally small stocks today. There has been little inducement to buyers to fill their storehouses and shelves in recent months even though paper prices have been relatively low, and very few have bought in other than hand-to-mouth fashion. There is no such thing as any big surplus stock of paper hoarded up in any quarter, judging from all indications, even manufacturers themselves having exerted every effort to keep stocks down as low as market conditions would permit. It therefore seems a foregone conclusion that the moment the need of paper increases—and it should increase very substantially if the prospects for betterment in business generally mean anything—demand should quickly expand, and manufacturers and jobbers should experience a marked gain in orders.

The latest statistical report compiled by the American Paper and Pulp Association shows that production of paper in the United States totaled 452,211 net tons of all grades in the month of April, showing at least a little increase over the 449,313 net tons produced in March. Moreover, the report indicates that tht movement of supplies from mills kept up at a good pace during April as shipments from mills in that month totaled 443,773 tons, or within close proximity to the production. Mill stocks of paper of all kinds at the end of April amounted to 230,121 net tons, contrasted with 223,693 tons at the end of March, showing but a slight gain.

Probably the most important development during June in paper prices was the reduction in news print. About the middle of the month several of the large Canadian manufacturers of news print announced a cut of $2 per ton from $75 to $73 a ton f.o.b. mills for standard news in rolls. This reduction came as a surprise to most members of the trade. There had been rumors of a cut but they were given little credence in trade circles because there were no reasons seen warranting a reduction. The cut was especially surprising to American manufacturers, but they obviously had to fall in line and reduce quotations in like proportion to cover contracts for deliveries over the second half of the year.

There is no denying that demand for news print has slumped to some degree recently. Perhaps the price reduction has had something to do with this; whatever the reason—and most factors in the trade believe it nothing more than the customary summer slowing down of consumption—the news print market has not exhibited so much activity. As an indication, the International Paper Company several days ago anounced it had closed down the news print machines in four of its smaller mills owing to a slackening of demand. These mills, having a total capacity of slightly over 300 tons a day, are located at Fort Edward and Glens Falls, N. Y.; Berlin, N. H., and Wilder, Vt. Despite this curtailment, the I. P. announced its production of all grades of paper was running at about 80 per cent of normal.

News print production in the United States in May totaled 134,219 net tons, compared with 128,249 tons in April. Shipments from mills were 131,289 tons, against 127,505 tons in the preceding month. The output of Canadian mills was 117,833 tons during May, contrasted with 115,572 tons in April, while shipments totaled 117,651 tons, against 113,931 tons in April.

Book paper demand seems to be on the increase—slow, to be sure, but nevertheless certain. Those mills selling their product on contract are reported operating at very nearly maximum, and other mills are managing to get sufficient business to keep them fairly well engaged. Prices of book paper show greater steadiness than in some time, and predictions are frequently made that the market will witness higher levels later in the year.

Coarse papers are in slow demand. Retail business in most merchandising lines is light and less wrapping paper is consequently being used; therefore consumers are buying in small volume. Foreign competition is also a factor in wrapping paper and is keeping a good deal of business away from U. S. producers. However, no changes of note have occurred in quoted prices of wrapping or tissue papers.

Fine paper demand is fair but there has been some recession due to the midsummer dullness. Mills in New England are running at a moderate rate of capacity and are maintaining quotations. Higher costs of raw material, rag stock in particular, is a factor helping to sustain writing paper prices.

Box boards are in limited call. Consumers evince little disposition to buy other than to fill immediate wants, and most board mills are not operating in excess of four days a week. Prices of board are irregular and somewhat uncertain. Mills in the East frequently are cutting prices for periods of short duration while corralling orders, which has the effect of unsettling market levels.

It is rumored that plans are being made by the Reading Glazed Paper Co., recently organized, to take over and operate the former mill of the Doty & Scrimgeour Co. of Reading, Pa., manufacturers of glazed paper specialties, which was recently acquired at a receivers' sale by Clinton E. Woods, 1421 Chestnut St., Philadelphia, Pa., at a price of $53,000. Improvements will be made in the equipment.

The Tennessee Paper Mills, Inc., of Chattanooga, Tenn., is perfecting plans for complete mill electrification, and will install additional power equipment, including generators, motors, etc.

The Florida Paper Mills Co., of South Jacksonville, Fla., is proceeding with preliminary work on its proposed paper mills, to cost in excess of $200,000 with equipment.

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Papermaking Rags

A distinct turn has occurred in the papermaking rag market during the past few days. Instead of displaying a downward trend, prices of practically all grades of rags used by paper mills are on the rise; the tone is much stronger, available supplies are limited and everything seems to point to the market developing increasing firmness through the remainder of the summer.

It is rather unusual for rags to be exhibiting as much strength at this time of the year as they happen to be at present. Ordinarily collections are large at this period and prices are somewhat soft because mill demand is slow. Market circumstances are the reason for the present strength in values. For quite a lengthy interval demand for papermaking rags was narrow. Following the brisk activity in the market and the sharp advance in prices early in the year, demand slackened during February, March and April, and continued spotty and of restricted dimensions in May and the first part of June. During the past several weeks, however, there has been a pronounced broadening of buying interest among consumers, and the stiffening of prices is a direct reflection of this.

Indications are that the market circumstances, over which paper manufacturers have had no control, are likely to act to the disadvantage of rag consumers. During the period February to June when paper mills bought rags sparingly they were more or less obliged to pursue such a policy in absorbing raw material because of the unfavorable market situation existing in paper. Owing to the limited call for supplies from consuming quarters, collections of rags in the United States diminished to a marked degree, and importations fell off substantially, while packers and dealers were cautious about acquiring stocks because of the declining prices and the difficulty encountered in marketing rags among paper mills.

The result is that somewhat of a scarcity of rags has now developed, as indicated by the almost immediate strengthening of prices when paper manufacturers came into the market a few days ago for increased quantities of certain grades. This is particularly true as regards low qualities or roofing rags. Imports of roofing stock in the last couple of months have declined sharply, and it has been apparent domestic collections have greatly decreased owing to the comparatively low prices prevailing on this class of rags and also to the low value of other descriptions of waste material such as old paper, scrap rubber, metals, etc., which obviously has affected the gathering of rags along with these other materials.

Roofing rags have advanced some $4 or $5 a ton in the past few days, and the tendency of prices continues firmly upward. It is probable, from all indications, roofing stock will go higher, but on the other hand it seems unlikely that the market will touch the levels reached early last winter, when, it will be recollected, roofing rags soared to 2.50 cents a pound. It will take time, however, for importers to bring in sufficient amounts of rags to stem the upward swing of market prices, and for domestic collectors to get their gathering machinery into condition to increase the supply of domestic roofing rags, but it is a foregone conclusion that prices rising available supplies will mount because the better values will induce collectors to broaden their operations and importers to increase their purchases abroad.

Another factor in the market is the clothing strike in New York City. This strike was declared on June 25 after some weeks of preparation by the union officials and the production of new cotton cuttings in the important center of New York has been reduced to an exceedingly low level. The influence of the threatened strike was noted in the rag market for a month prior to the strike call, and prices of all grades of cuttings were very firm with some advancement recorded. Dealers in the East are holding such stocks of new rags as they have at stiff prices and assert it is a difficult matter for them to replace the goods on hand owing to the lack of production in cutting-up establishments. Efforts are being made to settle the strike but should it last for any appreciable length of time there is small doubt the effect will be to run prices of cotton cuttings up to much higher levels than now prevail.

Roofing rags are selling in the East at 1.70 cents per pound f.o.b. New York for No. 1 packing, and 1.50 cents for No. 2 grade, while foreign dark cottons have sold at 1.70 cents ex dock New York for July shipment from abroad. Roofing was down to where sales were recorded early in June at 1.30 cents New York for No. 2 domestic packing, so it can be seen prices have firmed substantially in the meanwhile.

New No. 1 white shirt cuttings are firmly quoted at 14 cents per pound at dealers' shipping points as a minimum and most shippers ask a half cent per pound or more above this price. New light silesias have advanced to 10 cents a pound f.o.b. dealers' points, unbleached muslins to 12.50 cents, blue overall cuttings to 10 cents, washables to 6.25 cents, fancy shirt cuttings to 7.50 cents, and white lawns to 12 cents.

Old white rags hold firm in price and are moving in a steady manner to paper mills. Thirds and blues also are in consistently good demand, and quotably steady.

Average quotations f.o.b. shipping points and ex dock New York follow

New stock—	New York and Chicago
White shirt cuttings, No. 1	14.00-15.00
White shirt cuttings, No. 2	7.75- 8.00
Fancy shirt cuttings	7.25- 7.50
Washables, No. 1	6.00- 6.25
Unbleached muslins	12.50-12.75
White lawns	12.00-12.25
Overall cuttings, blue	9.75-10.00
Black silesias	6.00- 6.25
Light flannelettes	9.75-10.00
Canton flannels, bleached	11.75-12.00
Canton flannels, unbleached	11.25-11.50
Shoe cuttings, bleached	9.75-10.00
Shoe cuttings, unbleached	9.00- 9.25
Light silesias	9.75-10.00
O. D. khaki cuttings	5.75- 6.00
Mixed khaki cuttings	5.25- 5.50
Corduroy cuttings	3.75- 4.00
Cottonade cuttings	4.75- 5.00
Linens, No. 1 white, foreign	16.00-17.00
Light prints, foreign	6.50- 7.00
Old stock—	
Whites, No. 1, repacked	7.00- 8.00
Whites, No. 2, repacked	4.50- 5.00
Whites, house soiled	3.50- 3.75
Whites, street soiled	3.25- 3.50
Lace curtains	4.75- 5.00
Thirds and blues, rough	3.00- 3.25
Thirds and blues, repacked	3.75- 4.25
Black stockings	4.00- 4.25
Cotton canvas, No. 1	4.50- 4.75
White cotton batting	4.25- 4.50
Roofing, No. 1	1.70- 1.85
Roofing, No. 2	1.50- 1.65
Dark colored cottons, foreign	1.65- 1.75
Blue linens, foreign	5.00- 5.50
Gray linens, foreign	6.00- 6.50
White linens, foreign	11.00-11.50
Light prints, foreign	3.75- 4.00

Rope and Bagging

Following a little reaction downward due to a slackening of demand from paper mills, prices of old rope seem to have steadied again and the market displays fair firmness. Papermakers are buying old rope in a careful manner. It is evidently appreciated the supply of this commodity is none too plentiful in spite of the fairly large imports from Europe in the past several months, and consumers are anxious not to excite the market. Domestic No. 1 old manila rope is selling at around 6.75 cents per pound f.o.b. shipping points, and foreign old manila rope at 6.25 cents ex dock New York. Some purchases at below these prices have been made recently—about a quarter of a cent under—but buyers acknowledge finding but little supply at the cheaper figures. Strings are firm and in steady movement, with mixed strings bring-

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ing 1.40 to 1.50 cents a pound at shipping points and sisal strings 2.25 to 2.50 cents.

Demand for old bagging is routine in character and of limited volume. Moreover, offered supplies seem easily ample to cover the wants of consumers, and prices are none too firm, other than on gunny bagging which shows a rising tendency. No. 1 scrap bagging is selling at 1.40 to 1.60 cents per pound at dealers' points, and roofing bagging at a cent per pound. No. 1 domestic gunny bagging is bringing 2 cents at shipping points in some cases.

F.o.b. shipping point and ex dock New York quotations are as follows

	New York and Chicago
Gunny, No. 1 domestic	1.90-2.00
Gunny, No. 1 foreign	1.80-1.90
Scrap bagging, No. 1	1.40-1.60
Roofing bagging	1.00-1.10
Wool tares, heavy	1.60-1.75
Wool tares, light	1.50-1.60
Manila rope, No. 1, foreign	6.00-6.25
Manila rope, No. 1, domestic	6.50-6.75
Sisal strings	2.25-2.50
Mixed strings	1.40-1.50

Old Paper

It is a difficult matter to ascertain definitely what are actual prices of old paper. Prices are quite irregular and on a broad range. It is generally acknowledged that demand from consumers is slow, that most board and paper mills are interested mainly in covering immediate requirements and that most of them haven't the need of usual amounts of waste paper, reflecting the quiet market condition in finished box board and paper. There have been little spurts and declines in prices of the different grades of paper stock in recent weeks, caused by improvement or recession in demand from mills, and the entire situation appears to be a hand-to-mouth affair, with consumers buying merely to satisfy direct wants and with dealers and packers confining their operations to filling orders in hand. It seems significant that the least show of demand for any particular kind of old paper almost immediately causes a slight rise at least in that description of stock. This condition reflects the low level of collections and prompts dealers to argue that once consuming demand broadens prices will rise to substantially higher levels.

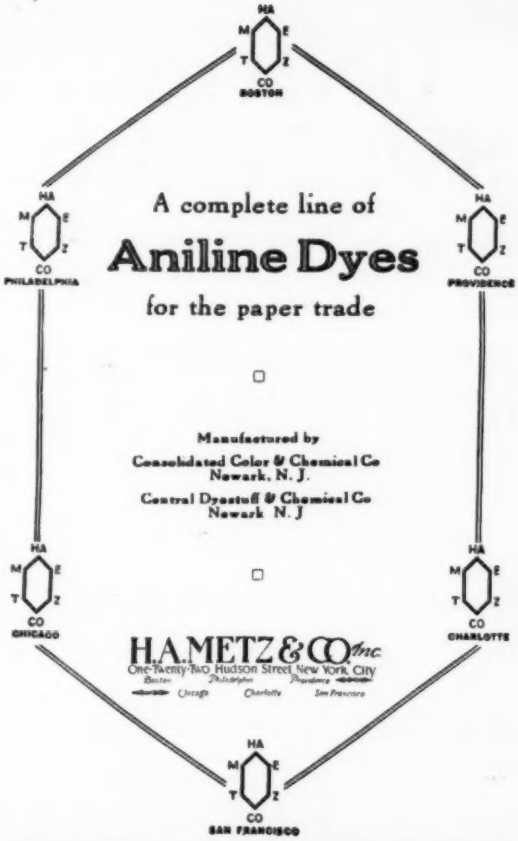
Shavings are selling at around 2.40 cents per pound in the East f.o.b. New York for No. 1 soft white, and 3.25 to 3.50 cents for No. 1 hard white shavings. Ledger stock is bringing 1.40 to 1.60 cents a pound f.o.b. New York, depending on the quality of packing, and heavy No. 1 books are fetching 1.15 to 1.30 cents at shipping points. Folded news is selling at 55 cents a hundred pounds f.o.b. New York and No. 1 mixed paper at 45 cents, whereas slightly higher prices than these prevail on low grades in the West.

F.o.b. shipping point quotations are:

	New York and Chicago
Hard white shavings, No. 1	3.25-3.50
Hard white shavings, No. 2	2.75-3.00
Soft white shavings	2.40-2.60
Colored shavings	1.25-1.40
Heavy book, No. 1	1.15-1.30
Crumpled book, No. 1	.90-1.00
Ledger stock	1.40-1.60
Kraft, No. 1	1.60-1.75
Manilas, No. 1	.80-1.00
White blank news	1.50-1.60
Over-issue news, No. 1	.70- .80
Folded news	.55- .60
Mill wrappings	.60- .70
Mixed paper, No. 1	.45- .50
Common paper	.35- .40

Chemical Pulp

While no substantial improvement is noted in the domestic chemical wood pulp market, it can certainly be stated that the condition is no worse than it has been in recent months. If anything, the tone of the market is a little firmer; business is showing some signs of looking up as consumers are exhibiting more interest in pulp, and quoted prices are at least holding their own. In some cases it is said that the quotations received from abroad on sulphite and kraft pulp are on levels slightly beyond a parity with prices ruling on domestic pulp, and this is acting to increase business to some extent for U. S. manufacturers. The market condition, however, is still anything but satisfactory to producers. Paper and board mills are looking for pulp at cheap cost, and their requirements have been such as to permit them to buy in a



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GROUND WOOD

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OF
EVERY DESCRIPTION

very piecemeal manner and thus enable them to keep prices down, while foreign competition is exceedingly keen; so keen, in fact, that a majority of domestic pulp manufacturers find it a difficult matter to compete in the sale of pulp to consumers in the open market.

No changes have been announced nor noted in quotational ranges. Producers are maintaining their prices, and contend it is impossible—from a cost and profit standpoint—to sell pulp any cheaper, yet now and then sales are reported at some concession. Bleached sulphite is quoted at 3.75 to 4.25 cents f.o.b. pulp mills for No. 1 grade, and No. 1 unbleached sulphite at 2.50 cents up to 3 cents, depending on the quality and tonnage. Kraft pulp is firm at around 2.60 cents a pound at pulp mills though some grades are available down to 2.50 cents. Bleached soda pulp is quotably steady at 3.50 to 3.75 cents at producing mills.

F.o.b. pulp mill quotations are as follows:

Bleached sulphite	3.75-4.25
Easy bleaching sulphite	2.75-3.00
Unbleached sulphite, No. 1	2.50-3.00
News grade sulphite	2.40-2.65
Soda pulp, bleached	3.50-3.75
Mitscherlich, unbleached	3.50-3.25
Kraft, No. 1	2.50-3.00
Screenings, refined	1.50-1.75

Mechanical Pulp

A little softening of prices of ground wood has occurred but the price situation at the moment is characterized by fair steadiness and demand for mechanical pulp is of sufficiently broad dimensions to create a moderately active market. It is nothing unusual for ground wood prices to ease during the early summer as this is the time of the year when grinding operations are at the zenith owing to plentiful water, and production of mechanical pulp consequently is large, while the recent slowing down of activity in the news print industry has lead to a decline in ground wood consumption and thereby decreased demand, thus affecting prices. It is said that grinders are not pressing pulp onto the market, being satisfied to pile up such surplus ground wood as they are now producing against probable needs later in the year, and latest market statistics go to show that producing mills are accumulating stocks such as they ordinarily do during this season.

Domestic ground wood is selling at around $27 to $28 a ton f.o.b. pulp mills, depending on the air dry test and the freight to consuming points. Perhaps some purchases have been effected at slightly lower prices; for example, it is known that Canadian ground wood has been bought at $26 a ton at grinding plants, but the freight to paper mills usually equalizes the price of pulp on a basis of approximately $33 to $35 a ton delivered.

The ending of the strike in the pulp and paper mills of Norway has resulted in increased offers of ground wood from that country but importers say the prices named are beyond a parity with market levels here, and not much Scandinavian ground wood is being imported at present.

Chemicals

The principal movement in paper making chemicals at present is against contracts or back orders. Fresh demand is developing slowly since most consumers are managing to eke along with contract supplies in such a way as to preclude new buying for a while. Prices generally are steady. Bleaching powder is quoted 1.90 to 2 cents a pound f.o.b. works in domestic drums. Imports of casein have been fairly large recently and prices are a shade down, ranging from 9.50 to 10.50 cents a pound, with duty paid on the foreign product. Caustic soda is steady at around 3.15 cents a pound for spot shipments, and soda ash is quoted at 1.35 cents or slightly higher.

Average quotations are as follows:

Alum, lump ammonia	3.25- 3.50
Alum, lump starch	3.75- 4.00
Blanc, fixe, powdered	3.75- 4.00
Bleaching powder	1.90- 2.00
Brimstone (long ton, at mine)	20.00-22.00
Casein (duty paid)	9.50-10.50
Caustic soda, spot delivery	3.10- 3.20
China clay, domestic washed	12.00-15.00
China clay, foreign	15.00-20.00
Rosin, grade E	5.75
Satin white	2.00- 2.25
Soda ash, 58 per cent light (bags)	1.35- 1.50
Starch, papermakers', in bags	3.40- 3.70
Talc (ton)	16.00-17.00

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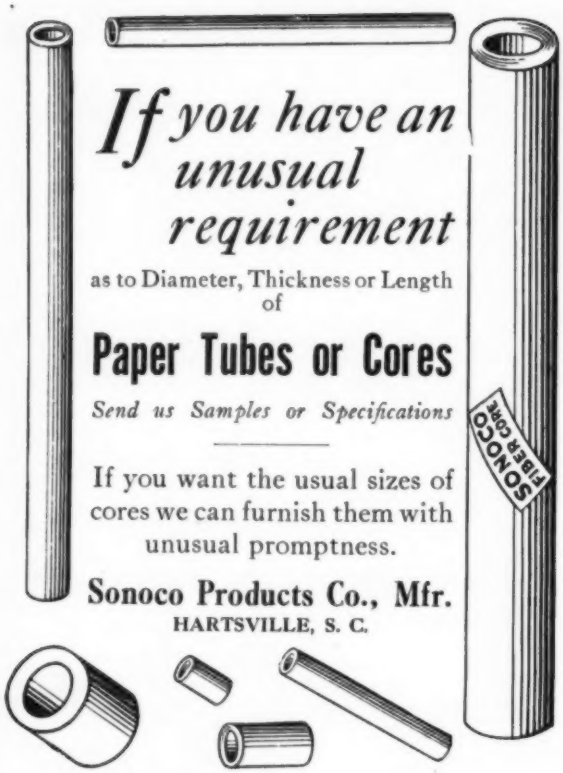

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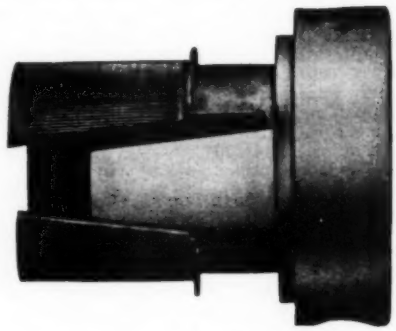

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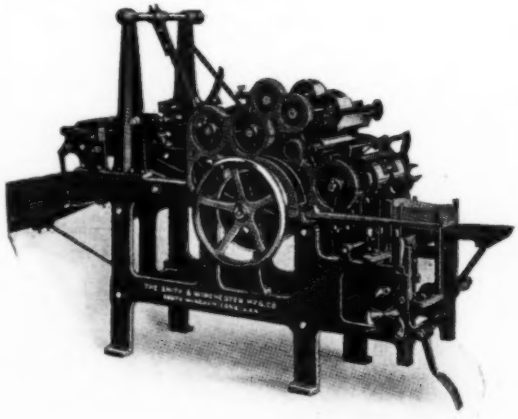

Paper Bag Making Machinery

New Papers

Writing—	
White rag	20-45
White sulphite	11-30
Colored rag	16-40
Ledger—	
White rag	20-50
White sulphite	13-30
Colored sulphite	40-30
Colored rag	16-50
Bonds—	
White rag	19-45
White sulphite	9-30
Colored sulphite	10-30
Colored rag	18-45
Book—	
No. 1 S. & S. C.	6.25- 7.00
Machine finished	6.00- 6.75
English finished	6.25- 7.00
Coated and enameled	8.00-14.00
Lithographed, M. F.	9.00-15.00
Newsprint—	
Rolls, contract	3.65
Rolls, transient	3.85- 4.25
Sheets	4.25- 4.50
Side runs	3.25- 3.75
Cover Stock—	
Coated, both sides	10.25
Coated, one side	10.15
Tissue—	
No. 1 white, 20x30	.75- .85
No. 2 white, 24-36	.70- .75
No. 1 manila, 24-36	.70- .75
Kraft	1.00- 1.25
Wrapping—	
No. 1 Kraft	6.00- 6.75
No. 2 Kraft	5.25- 5.75

Boards—	New York and Chicago
Solid news	45.00-50.00
Straw	52.50-57.50
Plain chip	40.00-45.00
White coated chip	55.00-60.00
Manila coated chip	50.00-55.00
Binder's board	70.00-75.00

New Books in the Paper Industry

"A Practical Hand-Book for Paper Manufacturers," by Sheldon Leicester, is a hand-book based on lectures given to students, apprentices, artisans in paper works and others, having special reference to the manufacture of paper and its uses by printers, lithographers, ink manufacturers, stationers, publishers and others handling paper.

There are 363 pages, size 6x9 inches, with 218 illustrations. Following are the titles of the chapters

Chapt. I—The Common Fibres Used in Papermaking;
Chapt. II—The Treatment of Rags;
Chapt. III—Wood Pulp;
Chapt. IV—The Beating Process;
Chapt. V—Mineral Loading of Paper;
Chapt. VI—Hand-Made Paper;
Chapt. VII—The Fourdrinier Paper Machine;
Chapt. VIII—Damping and Super-calendering Machines;
Chapt. IX—Absorptivity and Absorbent Papers;
Chapt. X—Waterproof Papers;
Chapt. XI—Printing Papers;
Chapt. XII—Writing, Wrapping and Miscellaneous Papers;
Chapt. XIII—Physical Paper Testing;
Chapt. XIV—Qualitative Tests for Sizing;
Chapt. XV—Printing Processes.

This book is published in the U. S. by the J. B. Lippincott Company, Washington Square, Philadelphia, Pa., and in England by the Charles Griffiths & Co., Ltd., London.

"Lumber and Its Uses" is written by R. S. Kellogg, author of "Pulpwood and Wood Pulp in North America," "The Cost of Growing Timber," "The Timber Supply of the U. S.," and several others. The following is taken from the preface:

"Lumber and Its Uses" attempts to tell in simple, non-technical fashion about the properties and uses of the principal American species which are manufactured into lumber. There are many other forms of wood utilization which are outside the scope of this volume. It could not have been written without the information developed by the technical and statistical studies of the U. S. Forest Service during the past twenty years."

Following are the titles of some of its chapters:

Chapt. I—Structure of Wood;
Chapt. II—Physical Properties of Wood;
Chapt. III—Lumber Grades;
Chapt. VI—Shipping Weights;
Chapt. VII—Structural Timbers;
Chapt. IX—Wood Preservation;
Chapt. X—Paints and Wood Finishes;
Chapt. XIV—Lumber Prices;
Chapt. XVI—Commercial Woods;
Chapt. XIX—The Timber Supply;
Chapt. XXI—Sources of Information about Timber.

There are 370 pages, size 6x9 inches, with many illustrations. It is published by the U. P. C. Book Co., Inc., 239 W. 39th street, New York City.

A New Source of Pulp for Paper

The British residents in Kenya Colony (formerly the East Africa Protectorate)—or at least those of them who are interested in the commercial development of Kenya—are studying with great interest the possibilities for the production and exploitation of bamboo in their territory.

It has been ascertained that Arundinaria alpina, the bamboo of Kenya Colony, is an excellent substitute for woodpulp used in the manufacture of paper. The world shortage of woodpulp is causing paper manufacturers furiously to think, and with so many of the virgin forests rapidly disappearing, despite the attention being given to re-afforestation, it will be some considerable time before the newly-planted trees are ready for utilization.

The increased popularity or many types of paper board, and the multitudinous uses to which it can be put, has increased demand for woodpulp and has made it imperative that a substitute be found.

There are vast tracts of land in the highlands of Kenya Colony covered with bamboo, which is really a giant grass with a hollow culm and solid joints or nodes. The culms (or stalks) range from 30 feet to 60 feet in height, with a diameter of from 2 inches to 5 inches. It grows very rapidly, and reaches its full height in about three months. In fact the shoot is almost its full thickness when it emerges from the ground.

No proper survey has ever been made of these forests of bamboo in British East Africa, and it is therefore impossible to give an accurate estimate of the area covered by this specie. It is not unlikely that it may amount to a million acres. Many of them are at present inaccessible owing to the lack of means of transport, but as railways are extended in the territory, new areas will be opened up. Some idea of the great work involved in the construction of any transport facilities will be gleaned from the fact that it is possible to travel for a whole day without seeing anything but bamboo, and if it were not for the paths trampled by elephants the forests would be well night impenetrable.

In some areas the bamboo could be exploited immediately. In the Kikuyu escarpment, for instance, it is within easy access of the railway, and the water supply, though not abundant, is sufficient to meet requirements.

Laboratory experiments on the Kenya bamboo have given 37 per cent of air dry pulp, when treated with a solution of caustic soda. The pulp bleaches well and yields paper of a good quality. Specimens of each are shown in the Kenya section of the East African Pavilion at the British Empire Exhibition at Wembley.

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EXPORTS

Exports of paper from the United States in April showed a slight decline in total value from the same month of 1923, according to Department of Commerce statistics. April exports were valued at $2,139,764, compared with $2,181,645 in April a year ago.

Exports of news print in April amounted to 3,183,618 pounds, valued at $157,186, recording an increase in both quantity and value over the exports in April, 1923, when 2,947,053 pounds of a value of $144,339 was exported. Exports of uncoated book paper in April totaled 1,257,577 pounds, valued at $143,925, contrasted with exports of 2,122,680 of a value of $244,047 in the same month last year.

Wrapping paper exports from the U. S. in April amounted to 31,644 pounds of kraft of a value of $2,864 and 2,148,033 pounds of other wrapping, valued at $198,138, against exports of 44,326 pounds of kraft, valued at $4,250, and 2,247,076 pounds of other wrapping of a value of $184,772 in April a year ago. Exports of writing paper in April totaled 262,440 pounds, of a declared value of $58,348, against 611,301 pounds, valued at $86,931, shipped in April, 1923.

Exports of sheathing and building paper in April amounted to 344,096 pounds, valued at $15,213; of paper board and straw board to 6,274,207 pounds, valued at $274,834; of cover paper to 70,989 pounds, valued at $12,016; of greaseproof and waterproof paper to 131,872 pounds, valued at $17,842; of tissue and crepe paper to 226,964 pounds, valued at $56,321; of blotting paper to 148,669 pounds, valued at $20,079; of toilet paper to 390,104 pounds, valued at $49,018; of bristols and bristol board to 92,687 pounds, valued at $10,126; of photographic paper to 149,116 pounds, valued at $162,248; of paper bags to 1,197,479 pounds, valued at $106,945, and of wall paper to 1,837,942 yards, valued at $70,835.

IMPORTS

Wood Pulp

In some quarters it is stated that a little broader demand can be discerned for foreign wood pulp. Generally, however, reports say that paper manufacturers in the United States are proceeding cautiously and slowly in purchasing pulp; one reason advanced for this policy being the quiet condition of the paper and board market, and another that consumers in this country are now receiving fairly large supplies from Sweden ordered earlier in the year for first open water shipment, and therefore are not inclined to buy until having used a part of the incoming spring shipments from abroad.

Regardless of the comparatively limited demand for foreign pulp, the price tone appears steadier, if not firmer. Certainly some grades of pulp tend to stiffen the price. Market conditions in Europe are said to be such as to prompt producers in the Scandinavian countries to ask slightly higher rates for their pulp, and to cause them to hold more firmly for the prices quoted than they were disposed to do up to a short while ago. Kraft in particular is exhibiting price steadiness, and sulphite is at least holding its own with some brands frequently quoted a shade above recent price levels.

Importers with few exceptions contend that bottom prices have been witnessed for Scandinavian pulps for some time to come. It is pointed out that European consumers are buying fairly freely in Sweden and Norway, England especially, and that stocks of unsold pulp in Scandinavia are substantially below normal and also that Swedish manufacturers have disposed of the bulk of the pulp they will have for export over the balance of this year. It is agreed, on the other hand, that the future level of prices, insofar as the remainder of this year is concerned, rests entirely with the scope of demand from American papermakers. If business increases in paper and board and manufacturers have need for larger amounts of pulp and come into the market for additional supplies, it is argued prices will undoubtedly strengthen; if, however, demand fails to expand it is admitted prices may ease off again, possibly below the levels touched early this year.

Late reports from Norway say that exports of chemical pulp of all kinds from that country in the first three months of 1924 totaled 44,000 tons, showing a sharp decline from the 68,000 tons exported in the same period of 1923 and the 96,000 tons exported in the first quarter of 1920, and reflecting the low production because of the strike in the Norwegian pulp and paper mills this year, the strike having reduced the output by 20,000 tons of sulphite monthly and 4,000 tons of sulphate. Since the ending of the strike manufacturers in Norway have been accepting orders for small tonnage, chiefly from neighboring countries, with little guarantee of prompt delivery, it is said.

Advices from Sweden state that mills in that country are well sold up for the balance of 1924, some manufacturers having practically no more pulp to offer for this year. Great Britain and the United States are taking about 70 per cent of the Swedish shipments of sulphite, bought for delivery through the remainder of this year. Prices in Sweden exhibit a tendency to rise, particularly on kraft pulp.

Imports of pulp into the United States in April, according to Government figures, showed a marked decline in comparison with previous months. Chemical pulp imports in April amounted to 52,256 tons, compared with 77,402 tons in March, 110,932 tons in February and 79,097 tons in January. Imports of mechanical pulp in April were 16,456 tons, against 20,136 tons in the preceding month, 15,747 tons in February, and 15,768 tons in January. Importations in June likely increased as first open water shipments began to arrive in that month from Sweden, but official figures are not yet available.

Bleached sulphite quotations range from a low of about 3.65 cents per pound up to 4.15 cents ex-dock New York and other American Atlantic ports for No. 1 grade, depending on the brand and tonnage involved. Unbleached sulphite is quoted at an average price of about 2.65 cents on the dock at New York, while No. 1 Swedish kraft is firm at 2.60 cents ex-dock with some importers asking as much as 2.90 cents for special brands of kraft. Foreign ground wood of Scandinavian origin is quoted at $30 to $35 per ton ex-dock New York, and is offered rather sparsely.

Receipts at the port of New York in June and current market quotations ex-dock New York follow:

Bleached sulphite, No. 1	$ 3.65- 4.15
Unbleached sulphite, No. 1	2.50- 3.00
Easy bleaching	2.75- 3.00
Mitscherlich unbleached	2.75- 3.00
Kraft	2.60- 2.90
Ground wood, per ton	30.00-35.00

Perkins-Goodwin Co., 750 bls. from Christiania and 1,550 from Bremen; Lagerloef Trading Co., 4,056 bls. from Hango; H. Hollesen, Inc., 130 bls. from Hamburg and 13,013 from Bremen; E. M. Sergeant Co., 150 bls. from Gothenburg, 659 from Copenhagen and 2,700 from Harnosand; Scandinavian Pulp Agency, 254 bls. from Gothenburg, 1,500 from Harnosand and 2,250 from Sundsvall; Mechanics & Metals National Bank, 250 bls. from Gothenburg and 2,230 from Christiania; Johaneson, Wales & Sparre, 1,250 bls. from Bremen, 625 from Copenhagen, 125 from Christiania and 11,250 from Harnosand; Hartig Pulp Co., 2 bls. from Gothenburg and 74 from Rotterdam; Castle & Overton, 5,495 bls. from Bremen and 247 from Rotterdam; Buck, Kaier & Co., 150 bls. from Bremen and 300 from Hamburg; Borregaard Co., 6 bls. from Christiania; Acer & Co., 6,290 bls. from Woodfiber, B. C.; E. Naumberg & Co., 2,000 bls. from Trieste and 1,200 from Sundsvall; J. Andersen & Co., 750 bls. from Christiania and 3,000 from Harnosand; E. J. Keller Co., 505 bls. from Rotterdam; Bulkley, Dunton & Co., 3,200 bls. from Bremen; Order, 2,400 bls. from Gothenburg, 4,877 from Hango, 2,000 from Hamburg and 2,650 from Sundsvall.

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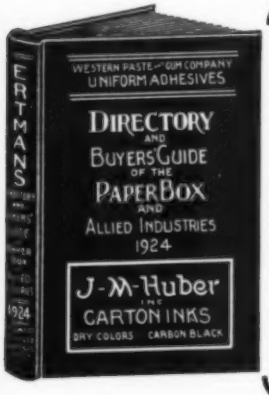

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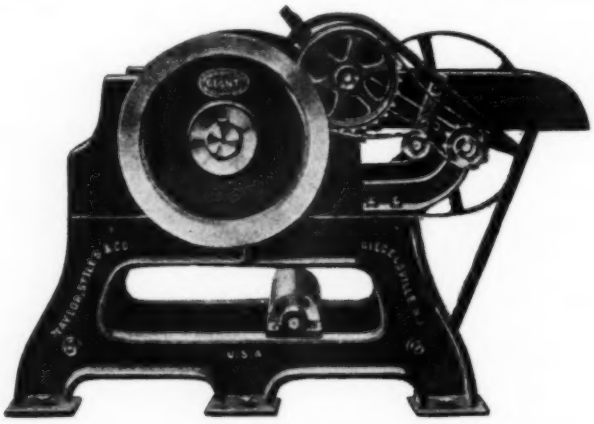

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Paper Stock

A decided decrease in importations of papermaking material other than wood pulp into the United States occurred in June, judging from the receipts through the port of New York. Rag imports declined sharply, reflecting the quieter market during the several preceding months which of course curtailed buying abroad by both consumers and importers. Fair amounts of old rope were received last month, and some shipments of bagging came in. Rag receipts were probably no more than half of the quantity in some of the months earlier in tht year. Imports of papermaking material of all kinds at the port of New York in June, with names of consignees, were as follows:

Old Rope

Brown Bros. & Co., 82 bls. and 573 coils from Rotterdam, 178 coils from Hamburg, 149 bls. and 70 coils from Bristol, 57 coils from Bremen, 292 coils and 6 bls. from Newcastle, 188 coils and 145 bls. from Antwerp and 149 coils from Hull; William Steck & Co., 28 bls. from Rotterdam; National City Bank, 49 coils from Bremen, 53 coils from Rotterdam and 51 coils from Havre; M. Wolfer & Co., 25 bls. from Havana; Ellerman's Wilson Line, 258 coils from London; International Purchasing Co., 44 bls. from Havre, 58 coils from Christiania and 325 bls. from Cebu; E. J. Keller Co., 110 bls. from Rotterdam; United Fiber Co., 30 coils from Glasgow; Philadelphia National Bank, 99 coils from Newcastle; International Acceptance Bank, 73 coils from Glasgow; Daniel M. Hicks, Inc., 71 bls. from Antwerp; N. E. Berzen, 14 bls. from Havana; Order, 84 coils from Rotterdam and 18 bls. from Hamburg.

Old Bagging

Maurice O'Meara Co., 117 bls. from Rotterdam and 46 from Antwerp; Mechanics & Metals National Bank, 32 bls. from Rotterdam and 71 from Manchester; S. Birkenstein & Son, 119 bls. from Rotterdam and 110 from London; Kidder Peabody Acceptance Corp., 263 bls. from Havre; Equitable Trust Co., 26 bls. from Havre; E. Butterworth & Co., 106 bls. from Rotterdam; E. J. Keller Co., 444 bls. from Rotterdam and 62 from Havre; Order, 146 bls. from Antwerp.

Rags

E. J. Keller Co., 191 bls. from Marseilles, 68 from Antwerp, 448 from Hamburg, 400 from Amsterdam, 1,158 from Rotterdam, 147 from Copenhagen, 236 from Trieste and 317 from Leghorn; J. A. Medina & Co., 97 bls. from Vera Cruz; L. H. Abenheimer, 40 bls. from Kobe; M. Wolfer & Co., 51 bls. from Havana; Maurice O'Meara Co., 215 bls. from Buenos Aires and 41 from Rotterdam; Stone Bros. & Victor Galaup Co., 21 bls. from Dunkirk; Katzenstein & Keene, 146 bls. from Havre and 142 from London; Whaling Waste Products Co., 131 bls. from Rotterdam; Daniel M. Hicks, Inc., 100 bls. from Rotterdam; George W. Millar & Co., 405 bls. from Rotterdam; S. Birkenstein & Son, 113 bls. from Hamburg and 870 from Antwerp; George M. Graves Co., 40 bls. from Antwerp; Waste Material Trading Corp., 101 bls. from Rotterdam; G. Meyer, 50 bls. from Hamburg; Northern Metals Selling Co., 14 bls. from Rotterdam; Paul Berlowitz, 222 bls. from Rotterdam; Salomon Bros. & Co., 111 bls. from Hamburg; Wilkinson Bros. & Co., 181 bls. from London; Castle & Overton, 207 bls. from Hamburg; Irving Bank-Columbia Trust Co., 401 bls. from Constantinople; National City Bank, 95 bls. from Antwerp, 159 from Dunkirk, 212 from Copenhagen and 178 from Bremen; Guaranty Trust Co., 778 bls. from Antwerp; Anglo-South American Trust Co., 56 bls. from Antwerp and 44 from London; International Acceptance Bank, 164 bls. from London and 96 from Rotterdam; Chemical National Bank, 209 bls. from Bremen and 4 from Antwerp; Union National Bank of Philadelphia, 60 bls. from Belfast; Second National Bank, 38 bls. from Bremen; Equitable Trust Co., 127 bls. from Marseilles and 71 from Havre; Manufacturers Trust Co., 24 bls. from Rotterdam; Coal & Iron National Bank, 68 bls. from Havre; A. W. Fenton, Inc., 159 bls. from Rotterdam; W. Van Doorn, 12 bls. from Rotterdam; Brown Bros. & Co., 92 bls. from Manchester, 401 from Bremen and 24 from Marseilles; Goldman, Sachs & Co., 272 bls. from Bremen; Strupp & Co., 341 bls. from Bremen and 130 from Hamburg; Order, 206 bls. from Liverpool, 207 from Marseilles, 3 from Manchester, 104 from London, 35 from Genoa, 225 from Leghorn and 77 from Antwerp.

Miscellaneous Paper Stock

National City Bank, 74 bls. from Barcelona; American Express Co., 39 bls. from Glasgow; George M. Graves Co., 24 bls. from London; Whaling Waste Products Co., 138 bls. from Rotterdam; Anglo-South American Trust Co., 191 bls. from

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Paper

Quite a noticeable falling off of importations of wrapping paper through the port of New York was observed in June. In fact, imports of nearly all kinds of paper were a little less than in the several previous months, but at the same time fair quantities of printing, cigarette, drawing and hanging papers were received. Importations of paper of all kinds through the port of New York in June follow:

Cigarette

P. J. Schweitzer, 127 cs. from Havre; Surbrug Co., 35 cs. from Southampton; Standard Products Corp., 210 cs. from Havre; American Tobacco Co., 2,000 cs. from Bordeaux; F. P. Gaskell & Co., 40 cs. from Havre; DeManduit Paper Corp., 20 cs. from Marseilles and 325 cs. from St. Nazaire; R. J. Reynolds Tobacco Co., 1,140 cs. from St. Nazaire.

Printing

B. F. Drakenfeld & Co., 117 cs. from Liverpool; C. Steiner, 18 cs. from Rotterdam; Oxford University Press, 35 cs. from Liverpool; Hudson Trading Co., 190 rolls from Hamburg; Falsing Paper Co., 323 bls. from Hamburg; Leonhard, Moritz & Co., 544 rolls from Hamburg; International Acceptance Bank, 375 rolls from Hamburg; Street & Smith Publishing Co., 51 rolls from Hamburg; Parsons & Whittemore, 829 rolls from Hango; Drinkhansen & Holtkott Paper Co., 296 rolls from Hamburg and 609 rolls from Rotterdam; International Forwarding Co., 12 cs. from Hamburg; Pulp and Paper Trading Co., 78 cs. from Hamburg; H. Hollesen, 285 bls. from Bremen; Perkins-Goodwin Co., 22 rolls from Antwerp; F. C. Strype, 7cs. from Rotterdam; W. Hartmann & Co., 220 rolls from Hamburg; Young Publishing Co., 452 rolls from Hamburg; J. P. Heffernan Paper Co., 621 rolls from Trieste and 2 rolls from Hamburg; Melby, Kuttroff & Co., 10 rolls from Trieste; Keuffel & Esser Co., 118 rolls from Hamburg; Seaman Paper Co., 25 rolls from Hamburg; Chemical National Bank, 593 rolls from Hamburg; Gallagher & Asher, 60 bls. from Hamburg; P. C. Zuhlke, 144 bls. from Antwerp and 21 cs. from Bremen; Traders Paper Co., 58 rolls from Hamburg; Dell Publishing Co., 359 rolls from Hamburg; Maurice O'Meara Co., 21 bls. from Hamburg; American Express Co., 224 rolls from Hamburg; Wilkinson Bros. & Co., 10 bls. from Rotterdam; Kupfer Bros. & Co., 61 cs. from Bremen; Order, 4,587 rolls from Hango, 79 bls. from Marseilles, 490 rolls from Hamburg and 108 rolls from Bremen.

Wrapping

Corn Exchange Bank, 3,788 rolls and 4 bls. from Gothenburg; Chatham & Phenix National Bank, 554 rolls from Gothenburg; Stevens Paper Co., 47 bls. and 3 rolls from Gothenburg; D. S. Walton & Co., 3,057 rolls from Gothenburg; Hensel, Bruckman & Lorbacher, 9 cs. from Rotterdam; International Acceptance Bank, 606 rolls from Hamburg; Wilkinson Bros. & Co., 79 bls. from Hamburg, 69 bls. from Antwerp and 1,644 rolls and 459 bls. from Rotterdam; Traders Paper Co., 255 rolls from Hamburg; Leonhart, Moritz & Co., 9 bls. from Hamburg; J. P. Heffernan Paper Co., 2,703 rolls from Hamburg; Chemical National Bank, 23 bls. from Gothenburg and 35 lbs. and 400 rolls from Hamburg; W. Van Doorn, 5 cs. from Rotterdam; Blauvelt-Wiley Paper Mfg. Co., 6 bls. from Glasgow; Maurice O'Meara Co., 109 rolls and 76 bls. from Hamburg; National City Bank, 56 rolls from Hamburg; International Acceptance Bank, 614 rolls and 33 bls. from Hamburg; Republic Bag & Paper Co., 23 rolls from Rotterdam; F. C. Strype, 12 cs. from Antwerp; R. Wilson Paper Corp., 54 cs. and 58 rolls from Glasgow; Order, 2,992 rolls and 186 bls. from Gothenburg, 2,435 rolls and 218 bls. from Hamburg and 180 bls. from Rotterdam.

Writing

F. L. Kraemer & Co., 2 cs. from London; Guibont Freres & Co., 18 cs. from Southampton; W. Hengerer & Co., 6 cs. from Liverpool; Devoe & Raynolds Co., 2 cs. from London; Ameri-

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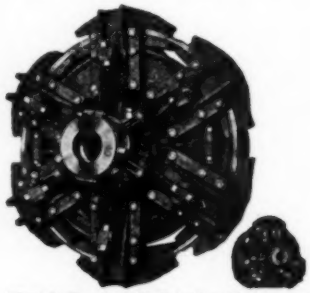

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The "SMITH TYPE" HILL CLUTCH is a safe and practical investment that pays dividends.

When the load is applied, this clutch can be depended upon to *"stand the gaff."*

Designed along correct mechanical lines.

Frictional contact 100% effective.

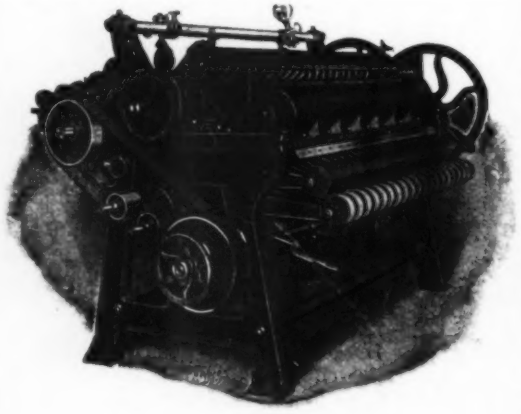
Lots of reserve power. Built in 20 sizes from 9 to 1300 H.P. at 100 R.P.M.

Install the "Smith Type" Hill clutch for economical operation of prime power units, individual machines, sections of shafts, or group drives.

The Hill Clutch Machine & Foundry Co.

General Office and Works
Cleveland, Ohio

New York Sales Office
50 Church St.



PAPER CUTTERS

Single, Duplex, and Diagonal

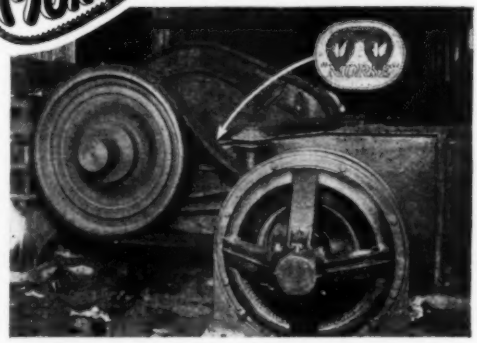
CUTTER KNIVES

PATENT TOP SLITTERS

Hamblet Machine Co.

LAWRENCE, MASS.

MORSE SILENT CHAIN DRIVES



100 H. P. Morse Silent Chain driving beater. Driver 685 R. P. M., driven 147 R. P. M., center distance 60 inches.

The Maximum Service from Your Motors

Belts slip, resulting in an inevitable loss of power and reduced machine speed, slowing up production and piling up costs.

Gears have no flexibility, transmit the entire shock of load changes to the motor, reducing materially its usefulness and life.

Morse Silent Chain Drives combine the flexibility of a belt with the positive action of a gear. Transmit 98.6% of the power developed, permitting the use of short centers, a significant item in conserving valuable space and making convenient arrangement possible. Run cool ,quiet and clean. Require practically little attention other than timely lubrication, and will, with ordinary care, work efficiently for many years.

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There is a Morse Engineer near you

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Atlanta. Ga.
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Montreal, Que., Can.
Philadelphia, Pa.
Pittsburgh, Pa.
San Francisco, Cal.
St. Louis, Mo.
Toronto, Ont., Can.
Winnipeg, Man., Can.

2115-30

can Tempex Co., 171 cs. from Hamburg; J. C. Robold & Co., 8 cs. from London; S. Bechtold, 45 cs. from Hamburg; Lord & Taylor, 2 cs. from Southampton.

Drawing

Keuffel & Esser Co., 18 cs. from Liverpool and 61 cs. and 53 rolls from Hamburg; E. Dietzgen & Co., 21 cs. from Rotterdam, 4 cs. from London and 116 cs. from Hamburg; H. Reeve Angel & Co., 2 cs. from London and 1 cs. from Southampton; International Forwarding Co., 2 cs. from London.

Filter

E. Fougera & Co., 186 cs. from Southampton; H. Reeve Angel & Co., 24 cs. from London; A. Giese & Son, 49 bls. from Bordeaux; American-Hawaiian S. S. Co., 2 cs. from London; J. Manheimer, 100 bls. from Southampton.

Tissue

Iwai & Co., 11 cs. from Kobe; Takata & Co., 3 cs. from Kobe; F. C. Strype, 50 cs. from Liverpool; Brown Bros. & Co., 18 cs. from Kobe; J. C. Robold & Co., 8 bls. from Liverpool; Meadows, Wye & Co., 9 cs. from Liverpool; Meagher-Devoy Shipping Co., 5 cs. from Liverpool; G. W. Sheldon & Co., 4 cs. from Liverpool.

Photo

P. C. Zuhlke, 286 cs. from Antwerp; J. J. Gavin & Co., 4 cs. from Liverpool; Gevaert Co. of America, 196 cs. from Antwerp; Globe Shipping Co., 433 cs. from Bremen; F. Henjes, Jr., 26 cs. from Bremen; T. F. Wilmot & Co., 7 cs. from London; Lithoprint Co., 4 cs. from Antwerp.

Hanging

F. J. Emmerich & Co., 5 bls. from Southampton, 2 bls. from Liverpool and 11 bls. from Hamburg; A. C. Dodman, Jr., & Co., 34 bls. from Liverpool, 6 bls. from Southampton and 5 bls. from Antwerp; W. H. S. Lloyd & Co., 56 bls. from London and 26 bls. from Liverpool; G. W. Sheldon & Co., 4 bls. from London; G. J. Hunken Co., 13 bls. from Hamburg; R. F. Downing & Co., 3 bls. from London; American Express Co., 12 cs. from Havre; Order, 2 bls. from Liverpool.

Board

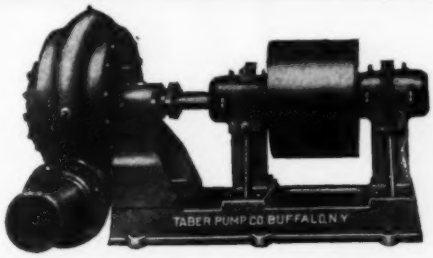
Metropolitan Import & Mfg. Co., 117 cs. from Hamburg; Houbigant, Inc., 13 cs. from Southampton; Buschmann, Weissberg & Co., 126 rolls from Hamburg; Bendix Paper Co., 31 cs. from Hamburg; Andrews & Co., 4 cs. from Bremen; New York Label & Box Works, 4 cs. from Hamburg; C. B. Richard & Co., 29 cs. from Hamburg; J. C. Robold & Co., 11 cs. from Liverpool; Abraham & Straus, 8 cs. from Havre; A. Leunis, 22 cs. from Hamburg; Gallagher & Ascher, 5 cs. from Hamburg; Adrian Vuyck, 2,268 rolls from Rotterdam; F. G. Prager & Co., 3 cs. from Hamburg; Order, 65 cs. from Gothenburg and 30 cs. from Genoa.

Miscellaneous

Whiting-Patterson Paper Co., 42 cs. from Southampton and 7 cs. from Havre; R. F. Downing & Co., 11 cs. from Kobe; P. H. Petry & Co., 6 cs. from Rotterdam, 18 cs. from Hamburg and 6 cs. from Bremen; Janeway & Carpenter, 51 bls. from Rotterdam; C. A. Johnson & Co., 13 bls. from Liverpool; Japan Paper Co., 10 cs. from London and 93 cs. from Genoa; F. L. Kraemer & Co., 2 cs. from London; Heemsoth, Basse & Co., 17 cs. from Hamburg; Bernard, Judae & Co., 3 cs. from Gothenburg and 4 cs. from Southampton; Boyle Needle Co., 6 cs. from Liverpool and 10 cs. from London; Martin & Bechtold, 25 cs. from Canton; Irving Bank-Columbia Trust Co., 8 cs. from Havre; New Jersey Worsted Co., 11 bls. from Hamburg; Second National Bank of Hoboken, 6 cs. from Hamburg; B. Meiners, 30 cs. from Canton; C. W. Williams & Co., 4 cs. from Antwerp; H. D. Catty & Co., 6 cs. from Bremen; G. Joseph & Co., 122 rolls from Hamburg; Louis De Jonge & Co., 2 cs. from Antwerp; Thomas & Pierson, 4 cs. from Havre; City of Paris Dry Goods Co., 22 cs. from Havre; Globe Shipping Co., 4 cs. from Havre; T. Nevin, 3 cs. from London; E. Daiber, 7 cs. from Antwerp; Sinclair & Valentine, 6 cs. from Bremen; J. S. Bernitz, 14 cs. from Rotterdam; Guibont Freres & Co., 19 cs. from Havre; Hensel, Bruckman & Lorbacher, 3 cs. from Bremen and 19 cs. from Rotterdam; H. Brockelbank, 6 cs. from London; Borden & Riley Paper Co., 21 cs. from Antwerp; Dupont Cellophane Co., 31 cs. from Havre; Judson Freight Forwarding Co., 19 cs. from Havre; American Express Co., 19 cs. from Havre; LeCurto & Funk, 5 bls. from Havre; Hyman & Schultz, 5 cs. from Havre; Coenca-Morrison Co., 11 cs. from Havre and 6 cs. from Trieste.

Holding its ground is what made the acorn an oak.

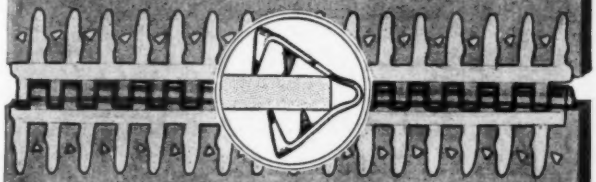
Another Massive TABER CENTRIFUGAL PUMP



TABER PUMP CO., Buffalo, N. Y.
"Pump Specialists"
Builders of Centrifugal and Rotary Pumps

PUMPS
INDUSTRIAL—AGRICULTURAL—MUNICIPAL—RESIDENTIAL
A Type for Every Service
THE GOULDS MANUFACTURING COMPANY
SENECA FALLS, N. Y.
GOULDS

ALLIGATOR
TRADE MARK REG. U. S. PAT. OFFICE
STEEL BELT LACING



Uninterrupted Belt Service

When you lace a belt with Alligator Steel Belt Lacing, you probably will never have to touch the lacing again as long as the belt runs unless you want to shorten or lengthen the belt—and if you do, the joint is already half made. A separate hinge lacing, smooth and flexible. "Just a Hammer To Apply It."

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4675 Lexington Street, Chicago, Ill.
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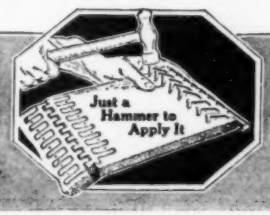
"Every Tooth A Vise"



For Every Size and Kind of Belt

Safe and Efficient

Patented Feb. 8, 1916

Essmueller
Peerless
Friction Clutch

With the Peerless Positive "V" Stop

A clutch designed for use on Globe or Cylinder Rotaries, furnishes positive power for starting the equipment; and absolute stopping for loading or unloading.

All parts are made of high-grade material, accurately machined and fitted.

This clutch is made in a number of sizes. Write for further information, or send us complete specifications and clutch will be shipped at once.

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A practical handbook for paper mill chemists compiled by the Committee on Standard Methods for Testing Materials Used in the Paper Industry

The methods approved by the Committee and used in the leading paper mill laboratories include thirty of the materials in most general use. Among them are Alum, Bleach, Casein, Paper Fillers, Aniline Dyes, Pigment Colors, Glue, Lime, Rosin Size, Starch, and many others.

In paper, $3
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Technical Association of the Pulp and Paper Industry
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Foreign Trade Opportunities

Additional information regarding the following foreign trade opportunities issued by the Bureau of Foreign and Domestic Commerce of the United States Department of Commerce may be obtained from the Bureau in Washington, D. C., or its branch offices. It is requested that the number of the inquiry be given at all times.

No. 10420—Paper for music rolls. Lima, Peru. Agency desired.

No. 10409—News print and wrapping paper. Alexandria, Egypt. Agency desired.

No. 10528—High grade bond paper. Rio de Janeiro, Brazil. Agency desired.

No. 10531—Carton paper, tarred, sprinkled with fine gravel. Boulogne, France. Purchase desired.

No. 10457—Paper. Barancas Orinoco, Venezuela. Agency desired.

No. 10533—Wall board for partitions. San Jose, Costa Rica. Purchase and agency desired.

No. 10529—Writing paper. Rio de Janeiro, Brazil. Agency desired.

No. 10532—Writing paper, best quality. Paris, France. Agency desired.

No. 10578—Paper. Bahia, Brazil. Agency desired.

No. 10548—Caustic soda. Bahia, Brazil. Agency desired.

No. 10712—Leather board and container board. Swansea, Wales. Agency desired.

No. 10713—News print paper, 850 reams of 500 sheets monthly. Bombay, India. Agency desired.

No. 10715—Newsprint, old, large size, 300 tons monthly. Calcutta, India. Agency desired.

No. 10711—Paper for photostat work. Giza, Egypt. Agency desired.

No. 10647—Paper and stationery. Bahia, Brazil. Agency desired.

Big Preparations for Craftsmen Convention

Information continues to come from craftsmen's clubs throughout the country telling of big preparations under way to send representative delegations to the Milwaukee Exposition and Convention, August 18 to 23.

Estimates now being made by the Milwaukee Committee have in mind taking care of from ten to twelve thousand delegates, which will be the largest gathering of craftsmen in the history of the movement.

The Booster Committee of the Grand Rapids Club announces that the Michigan City will be represented in Milwaukee at least fifty strong and that exposition matters are being kept in the forefront in all activities. The Grand Rapids Club is preparing to stage one of its famous skits as part of the entertainment. These skits have proven very popular at previous craftsmen's gatherings.

The board of governors of the Philadelphia Club have authorized their "On to Milwaukee" Committee to make plans to exhibit printing done by Craftsmen in various printing offices in that city. The Philadelphia Club suggests that other organizations adopt this plan.

The Minneapolis and St. Paul Clubs—Youngest of all craftsmen's organizations, and organized only a few weeks ago—are making plans to send delegations which will open the eyes of some of the older clubs.

A. F. Lewis, publisher of the Printing Trades Blue Books, and chairman of the Milwaukee Booster Committee of the Chicago Club, declares that there will be 250 visitors from Chicago at the convention the first day, Monday, August 18, and that the number will be increased from day to day until the big event on Thursday, which has been designated Chicago Day.

Mr. Lewis declared that enthusiasm for the exposition and convention was at a high pitch in Minneapolis June 20, 21 and 22 at the meeting of the International Trade Composition Association. Mr. Lewis addressed the association on the exposition and declared that many leading members announced they are making plans to organize parties to visit Milwaukee.

Frank B. Perry, of the Hartford Club, says: "I am very glad to read of the great preparations being made by the Milwaukee Club because I am sure there will be a large number of visitors present from eastern cities. I am quite sure the exposition will outshine all others, and all things being favorable, I shall be in Milwaukee at that time."

The F. Wessel Manufacturing Company of Brooklyn, N. Y., is making plans for a large and representative exhibit. Craftsmen will also be interested to learn that Russell E. Baum, of Philadelphia, will demonstrate the Baum 55 high duty folder at the exposition.

FOSTER "CLASS G" PUMP GOVERNOR

Suitable for 300 lbs. and maximum discharge of 250 lbs. and for hard, exacting and close regulation requirements.

Made in globe (straightway) bodies, screwed and flanged.

Sizes 2" and smaller, all composition; 2½" and larger, iron body, composition trimmed.

Write for 1924 Catalog—50.

FOSTER ENGINEERING CO.

Main Office and Factory, NEWARK, N. J.

FAWCUS

Herringbone Gear Reductions

They increase production, save labor and decrease wastage on Calenders. Write for literature. Special Machinery—Couplings—Gears.

FAWCUS MACHINE CO., Pittsburgh, Pa.

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Fitchburg Duck Mills

ESTABLISHED 1844

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STANDARD AND MULTIPLE PLY

DRYER FELTS

English Weave in Two, Three, Four, Five and Six Ply—60 Inches to 176 Inches in Width

Fine Faced Felts for Fine Papers. Absolutely no felt marks in paper. TRIUNE Three Ply Felts for Coarse Papers.

Pickles' Patent Automatic Steam Regulator

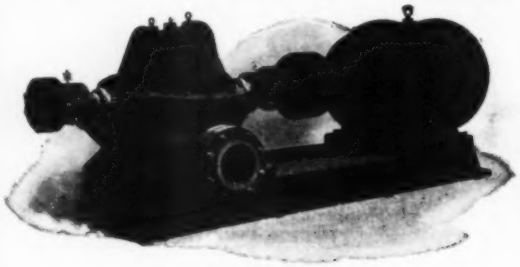
FOR

Paper Making Machines

Which absolutely control the drying of the sheet. Installed on sixty days' trial

W. F. PICKLES **Buckland, Conn.**

Aurora Centrifugal Pumps



Type OMD

Aurora pumps are made in many types, to meet all conditions found in the paper mill field.

We specialize in horizontally and vertically split open and inclosed impeller, single and multi-stage and deep well turbine centrifugal pumps as well as deep well reciprocating pumps.

A card from you stating your conditions places our engineers at your service and results in a saving to you.

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Home Office and Factories, Aurora, Ill., U. S. A.

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"Pilot" Gate Valves

WITH OUTSIDE SCREW STEM AND YOKE

FIG. 480

Screwed or Flanged Ends
Working Pressure
Up to 125 Pounds
Sizes ½ to 6 Inches

Especially Adapted for Handling ACIDS, ALKALIS & CORROSIVE SOLUTIONS.

Order
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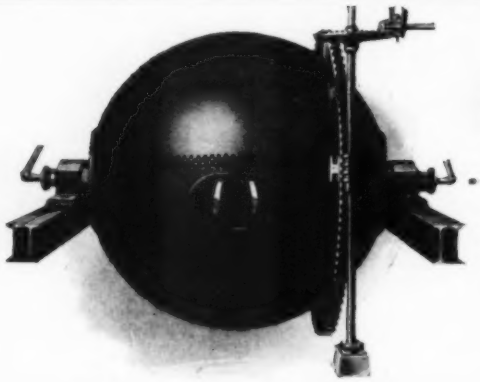

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We cannot help feeling proud at such evidences of trust in us and preference for Biggs Rotaries, and it is a matter of honor with us to give these good customers, whose friendship we value beyond its business significance, the best prices and the best service we possibly can.

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